TEXAS II

AIS Analysis “Results”
AIS Standards Activities

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September 4, 2008

Report Documentation Page

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OMB No. 0704-0188

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2008	**N/A**	**-**

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AIS Analysis Results AIS Standards Activities	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **U. S. C. G. Research and Development Center**	8. PERFORMING ORGANIZATION REPORT NUMBER
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15. SUBJECT TERMS

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a. REPORT	b. ABSTRACT	c. THIS PAGE			
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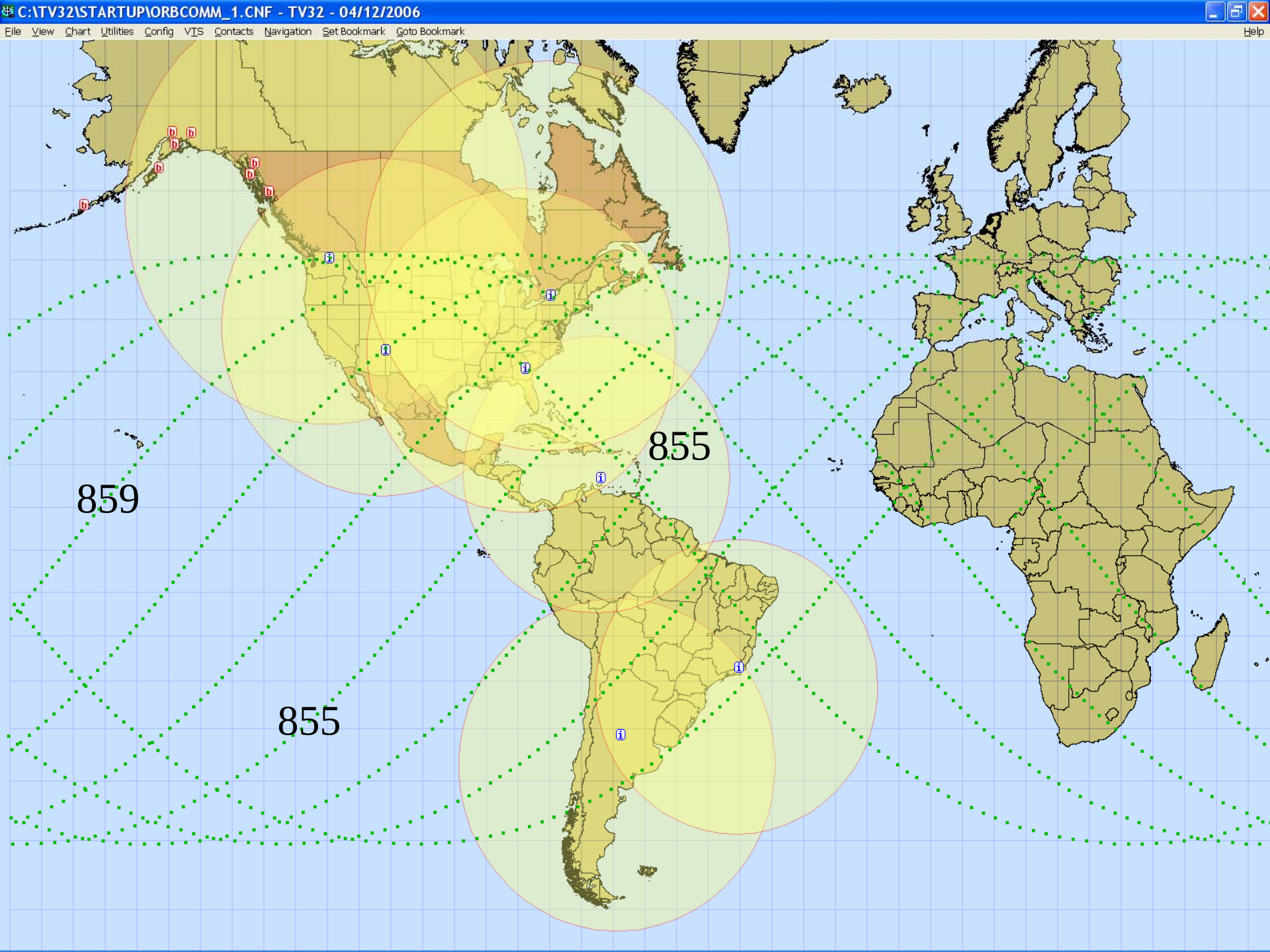
Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std Z39-18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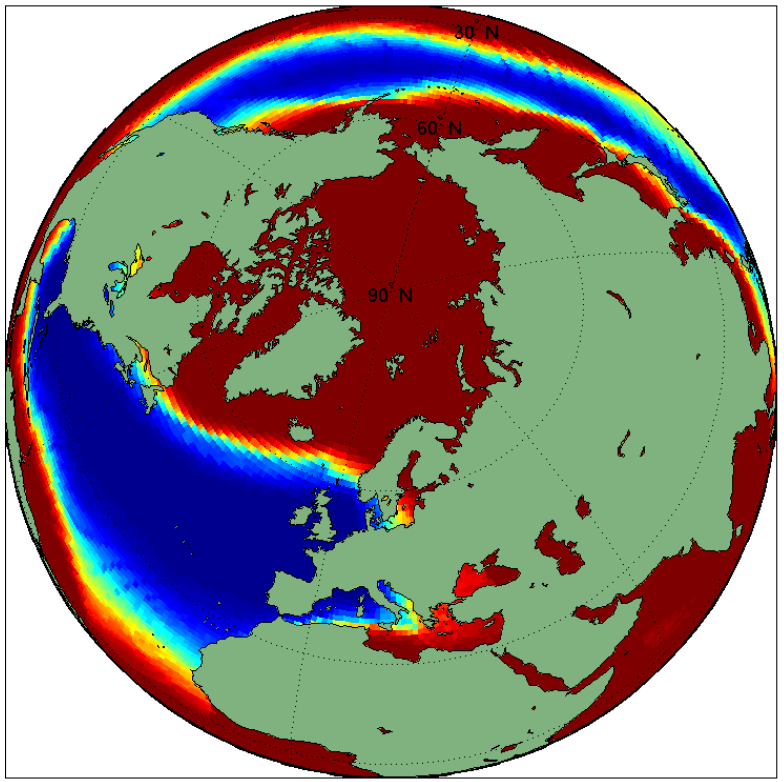
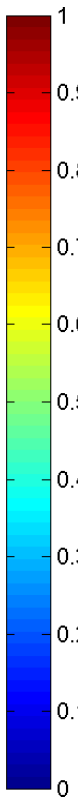
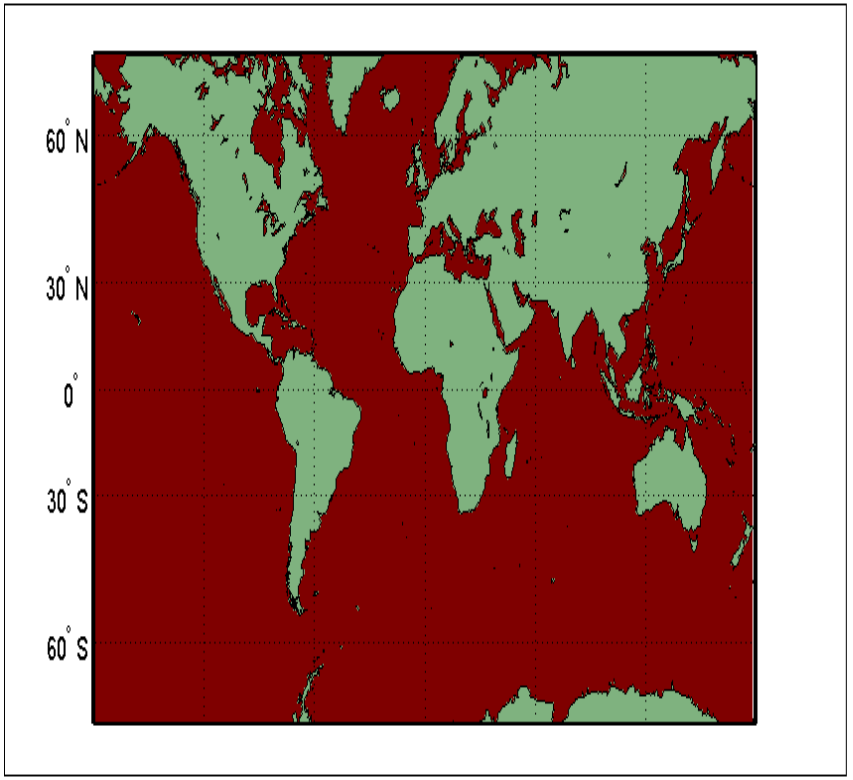
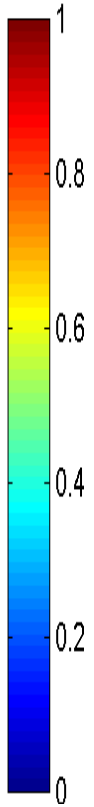
Daily Space-based AIS Detection Probability



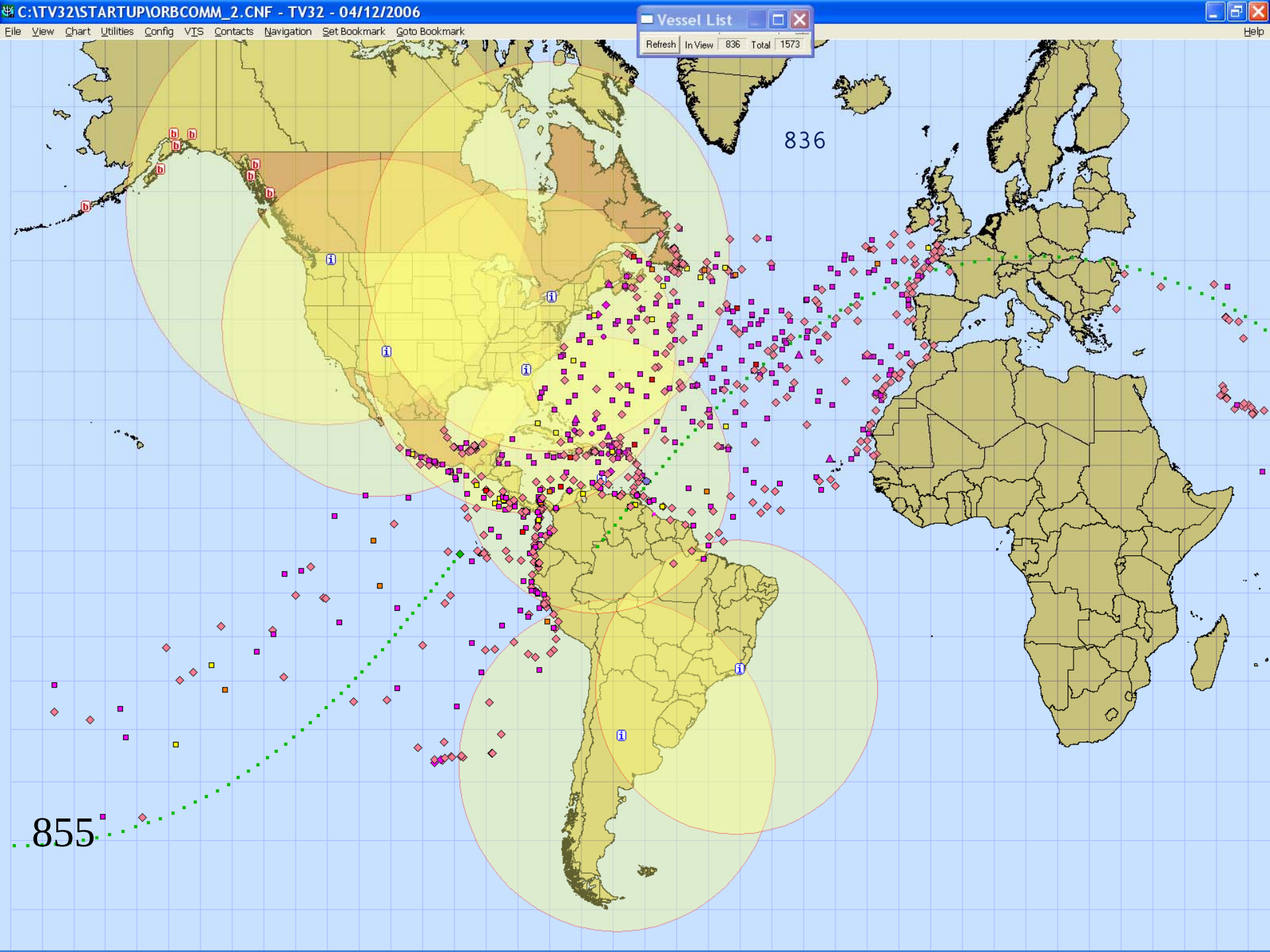






“AIS as is”

3rd frequency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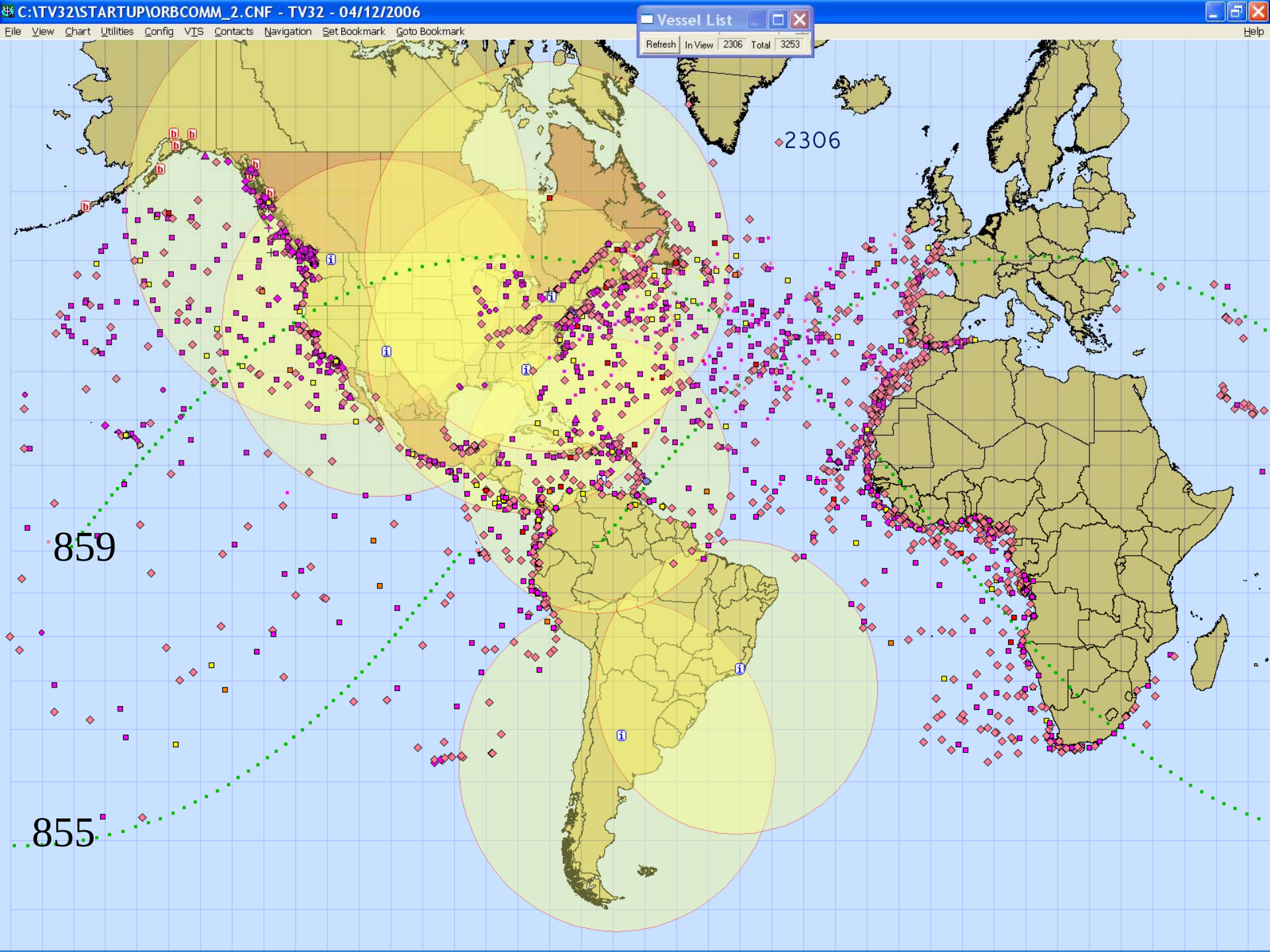
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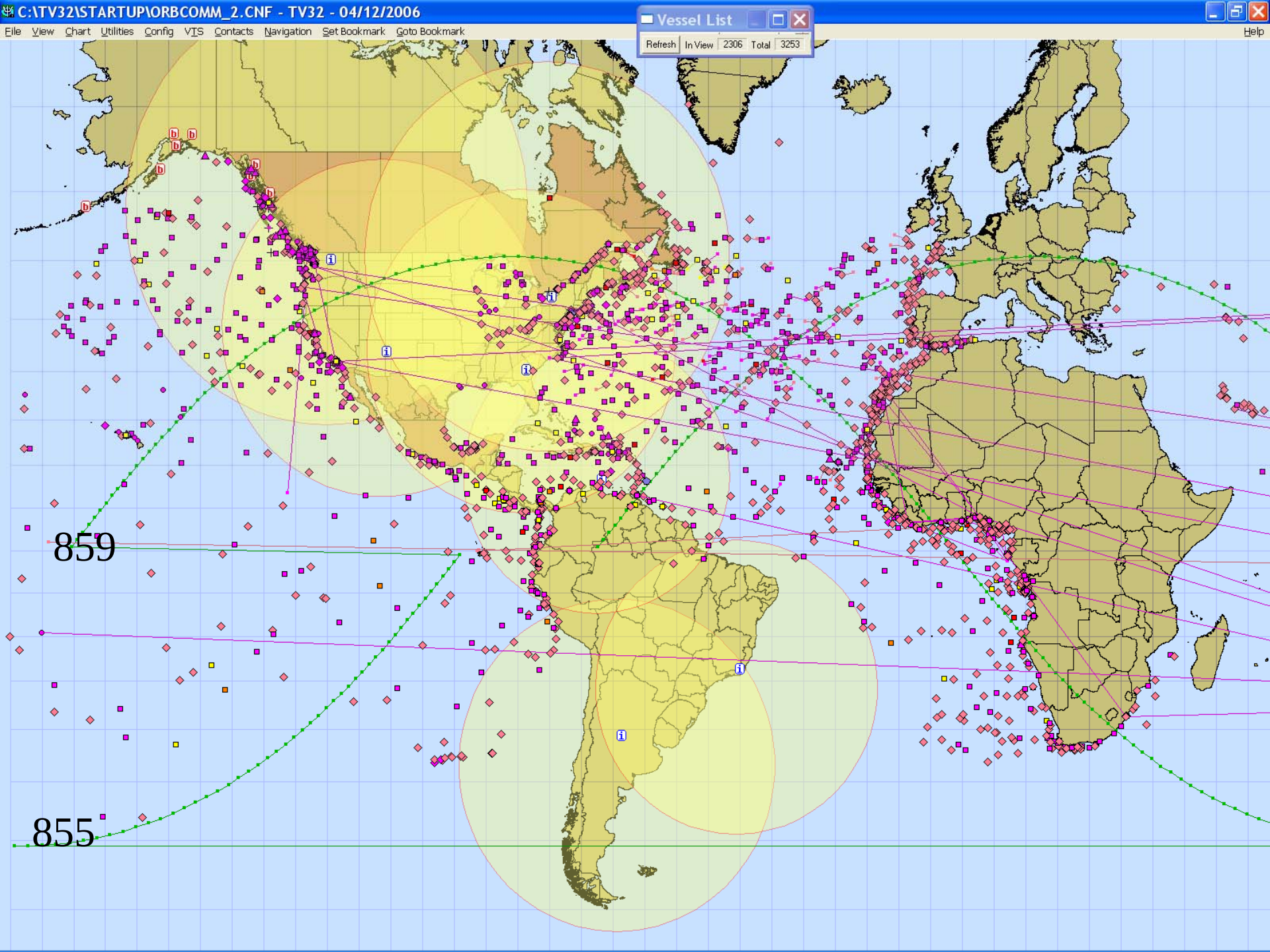
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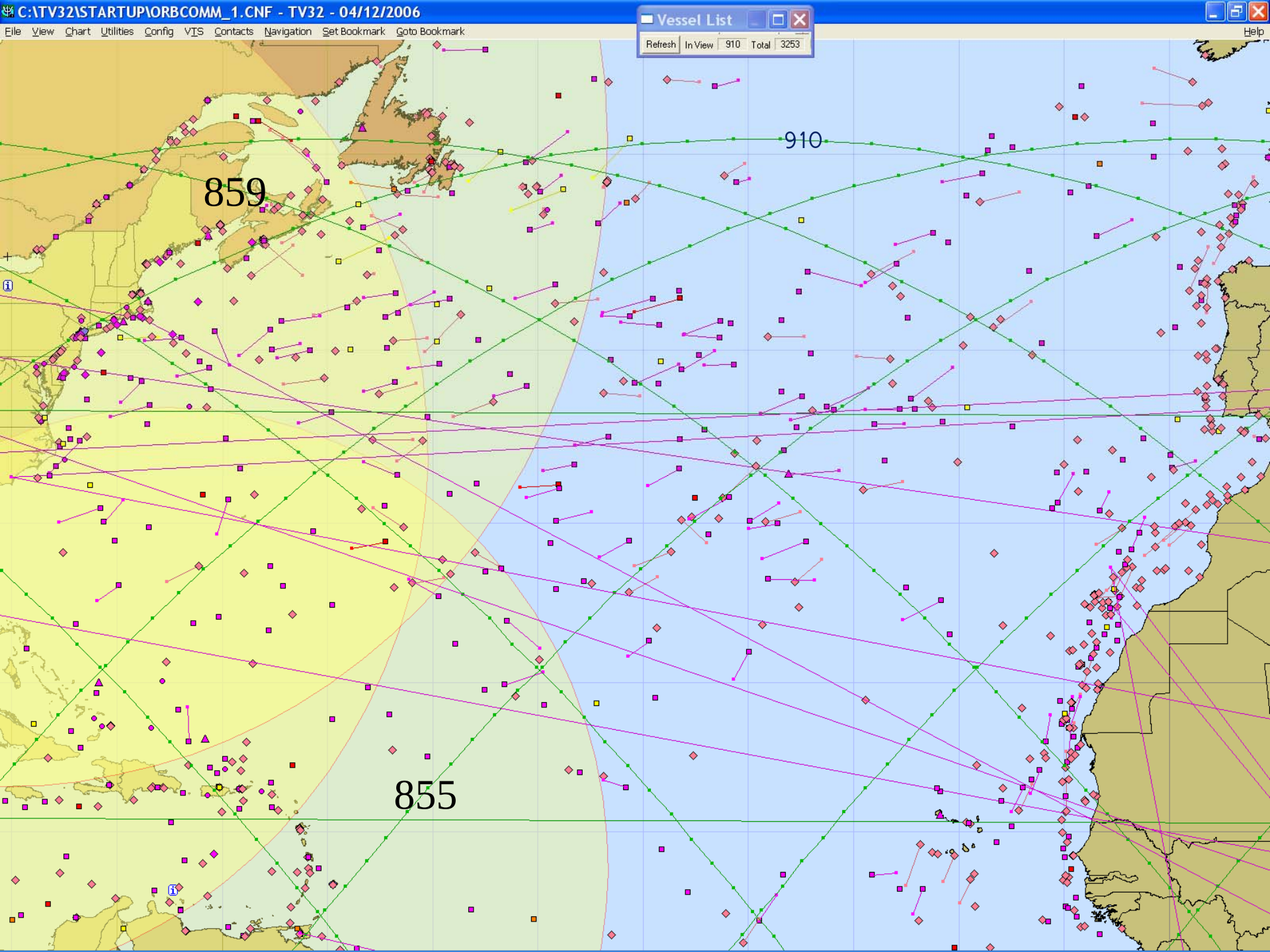
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Vessel List

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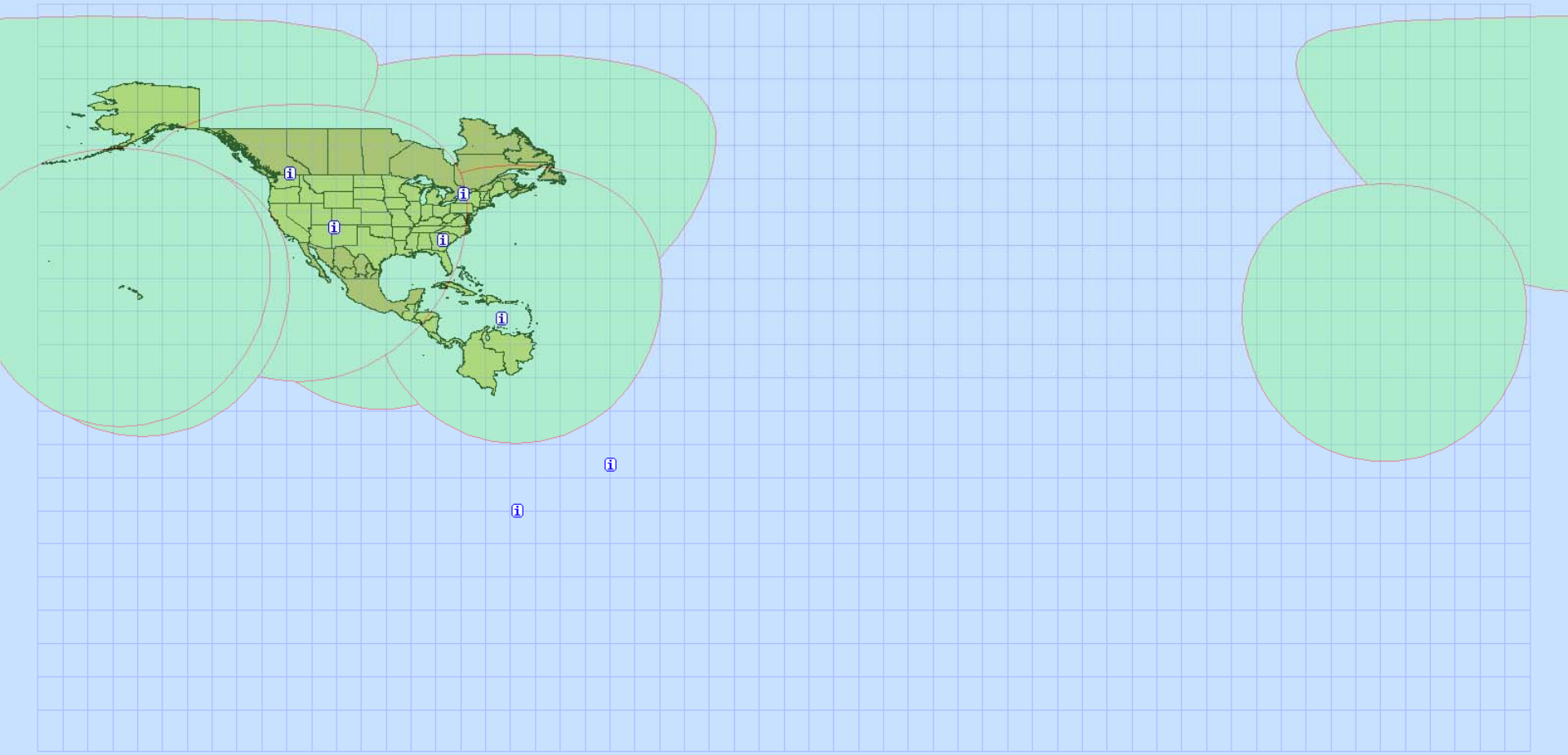

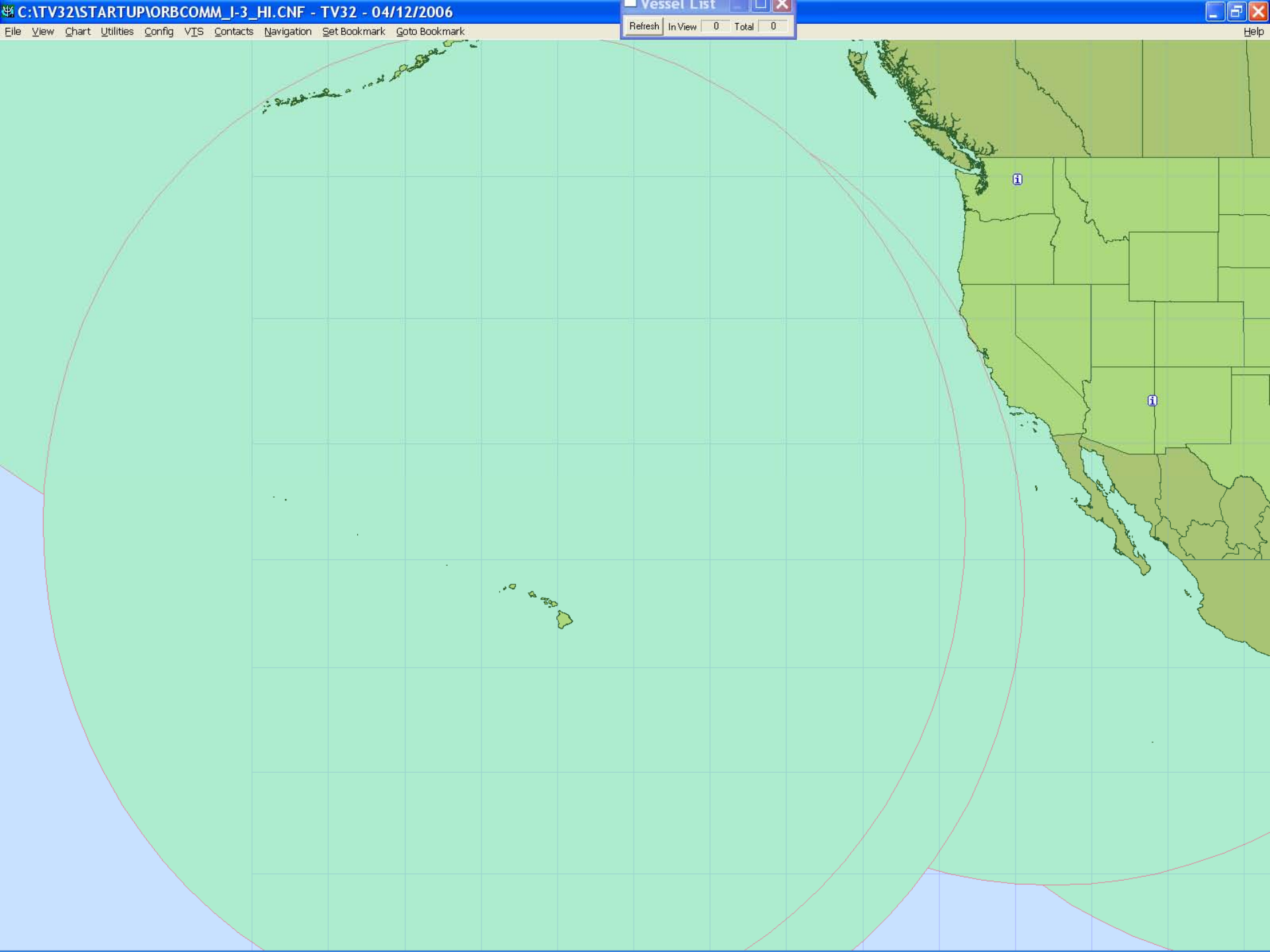
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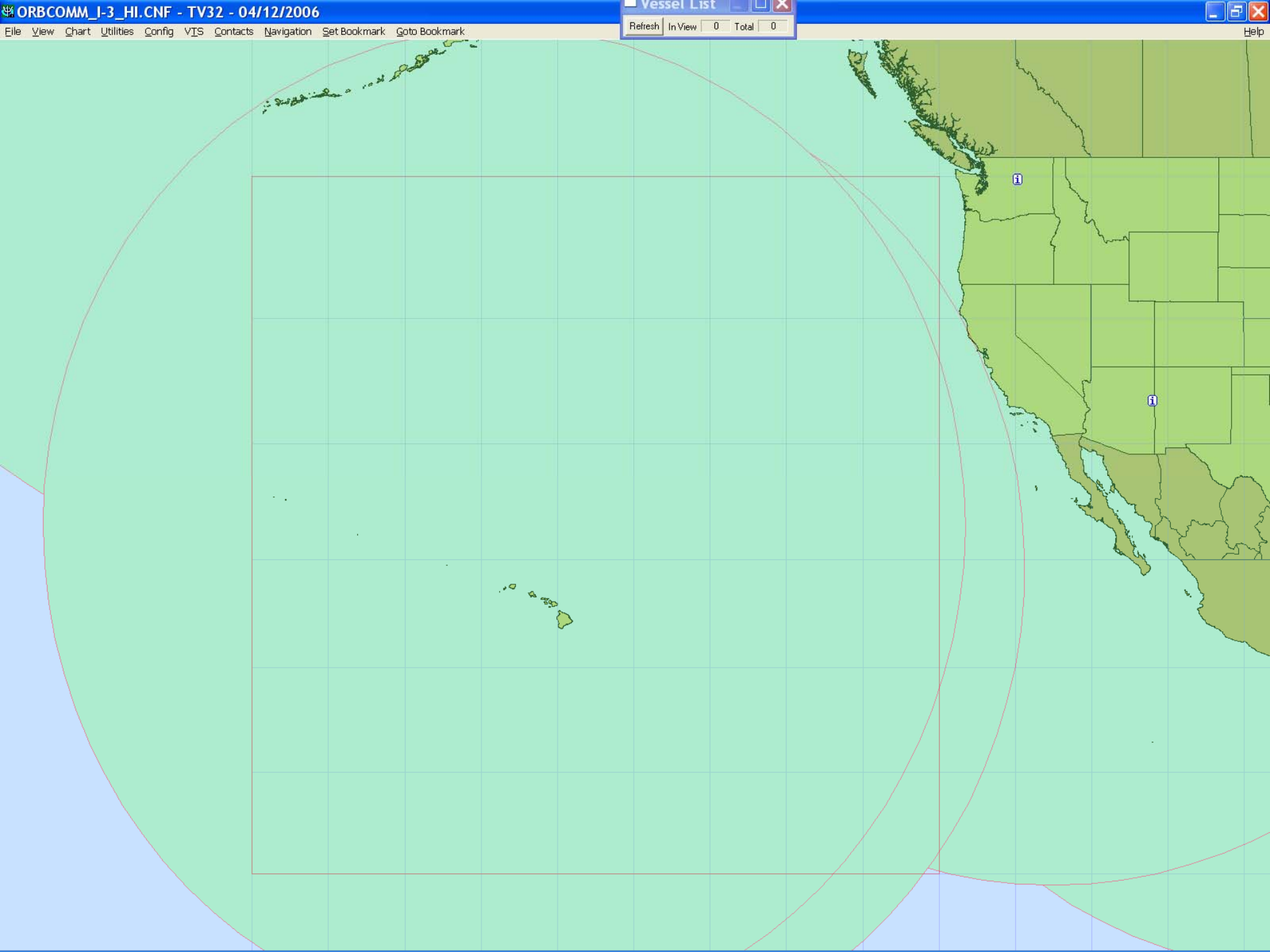
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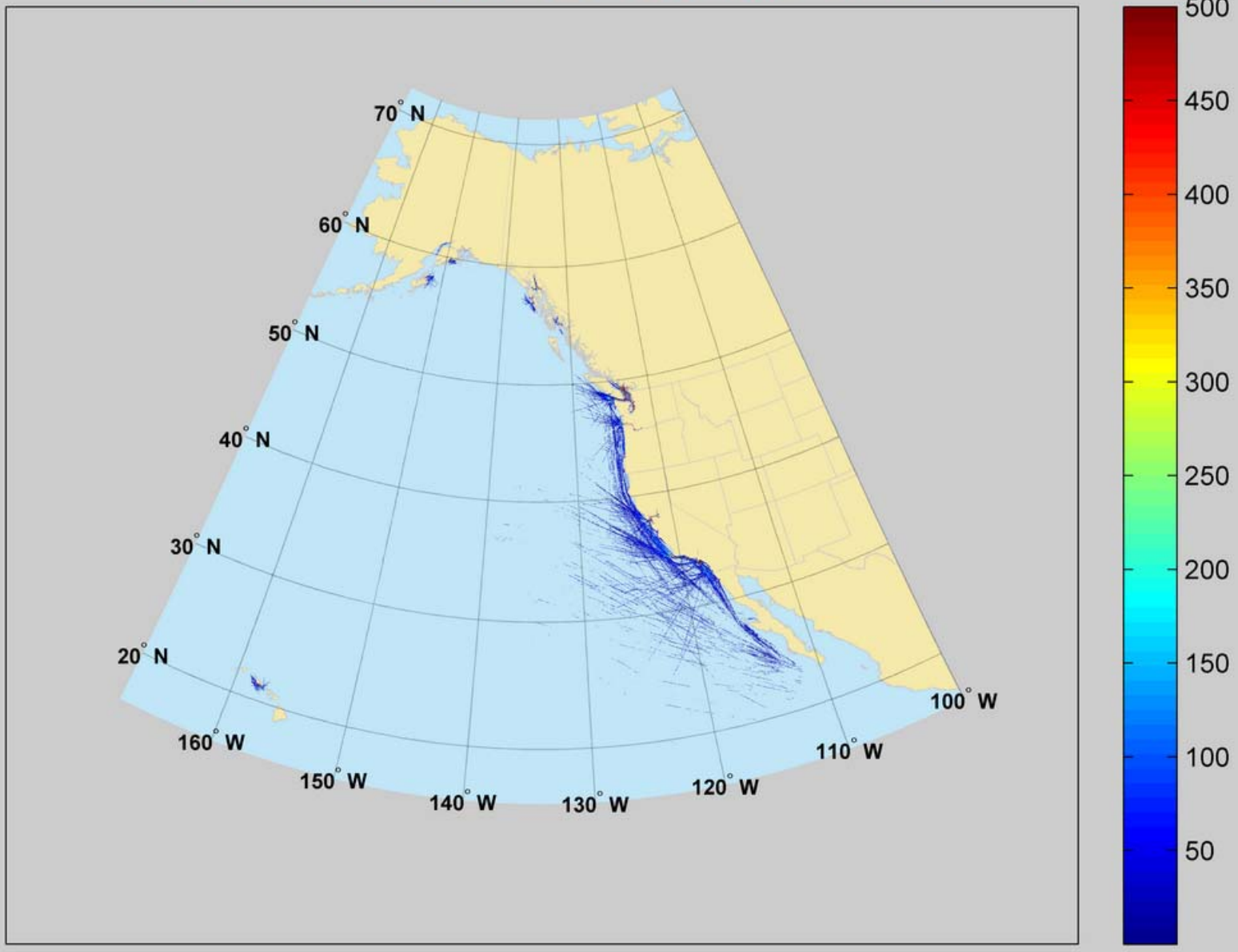
Total 0

West Coast Report Counts, Days 17 - 24



- Submit News
- Administration
- Member List
- Statistics
- Statistics (Advanced)

USCG RDC - AIS
Help/Information
Previous Months
Current
22

NAIS
Previous Months
Current
Comparison Analysis
79

VTS & Hawkeye
Previous Months
Current
53

SPAIS
Previous Months
Current
17

St Lawrence Seaway
Previous Months
Current
9

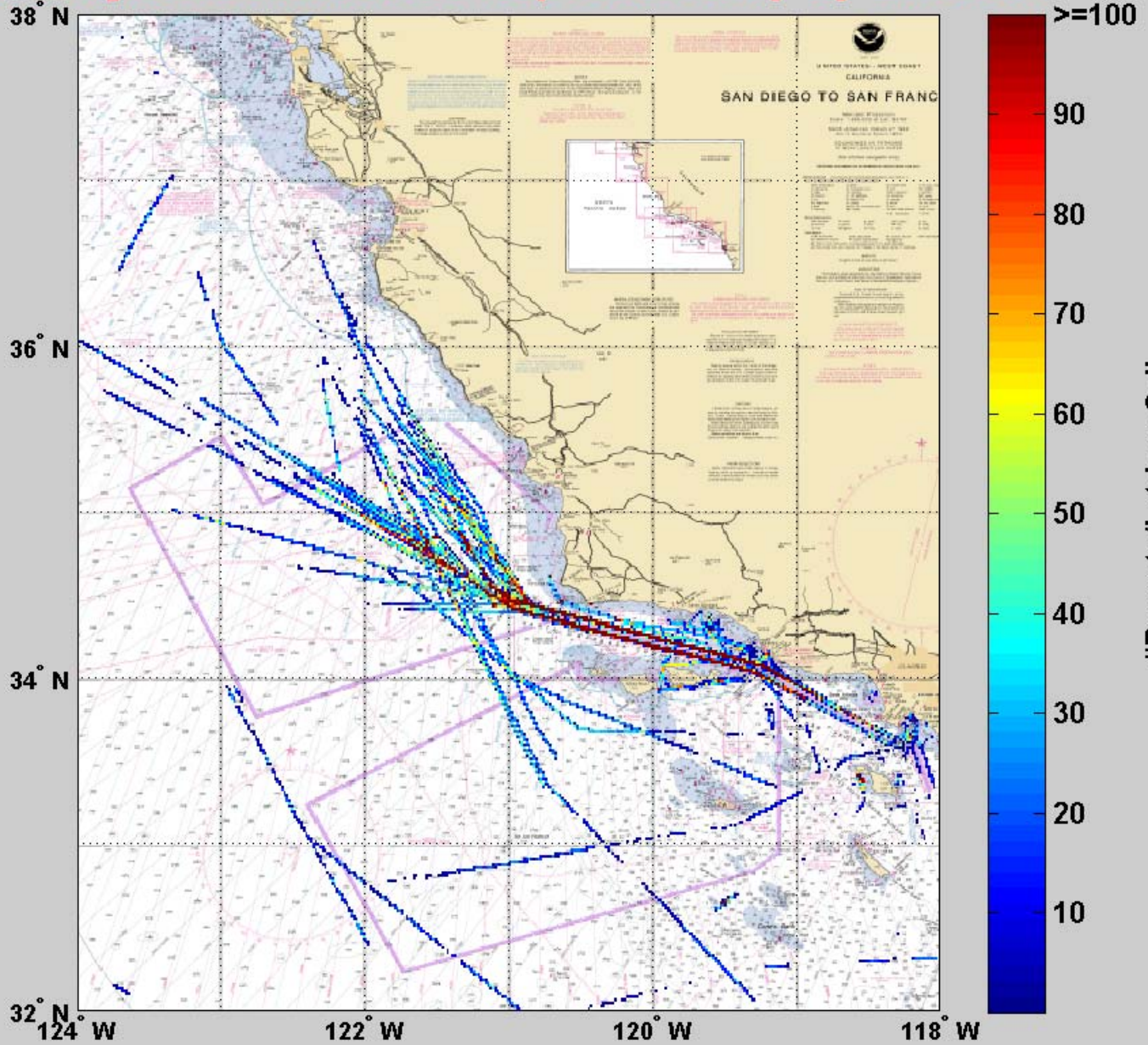
Older user logins such as RCDuser are now disabled for this website. Please follow the registration instructions below to regain access to the Analysis Website.

To register, please follow the instructions below.

Logging into the Coast Guard R&D Center for the First Time?

1. Click "Sign Up!" link. (Left side screen, below "Log in Problems?")
2. Click "Register." link.
3. Enter your new login name in the edit box provided.
4. Enter your E-mail address in the edit box provided.
5. Enter your name.
6. Click the "New User" button.
7. At this point, a temporary password will be sent to the e-mail account you provided in Step 4. Check this email to obtain your login and password. (This is a manual process. Please allow for a delay of several days.)
8. once you have received your login and password, go back to the Coast Guard R&D Center website and login.

20 Aug 2008 r11NTRQ1 Report Density by Lat/Lon



- Forums
- News
- Contact
- My Account
- Logout

Administrative Menu

- Submit News
- Administration
- Member List
- Statistics
- Statistics (Advanced)

USCG RDC - AIS

- Help/Information
- Previous Months
  - Area Performance
  - Site Performance
- Current

NAIS

- Previous Months
  - Area Performance
  - Site Performance
- Current
- Comparison Analysis
  - Previous Months
  - Current Month

Haleakala, HI Site Performance

Back to Site Index

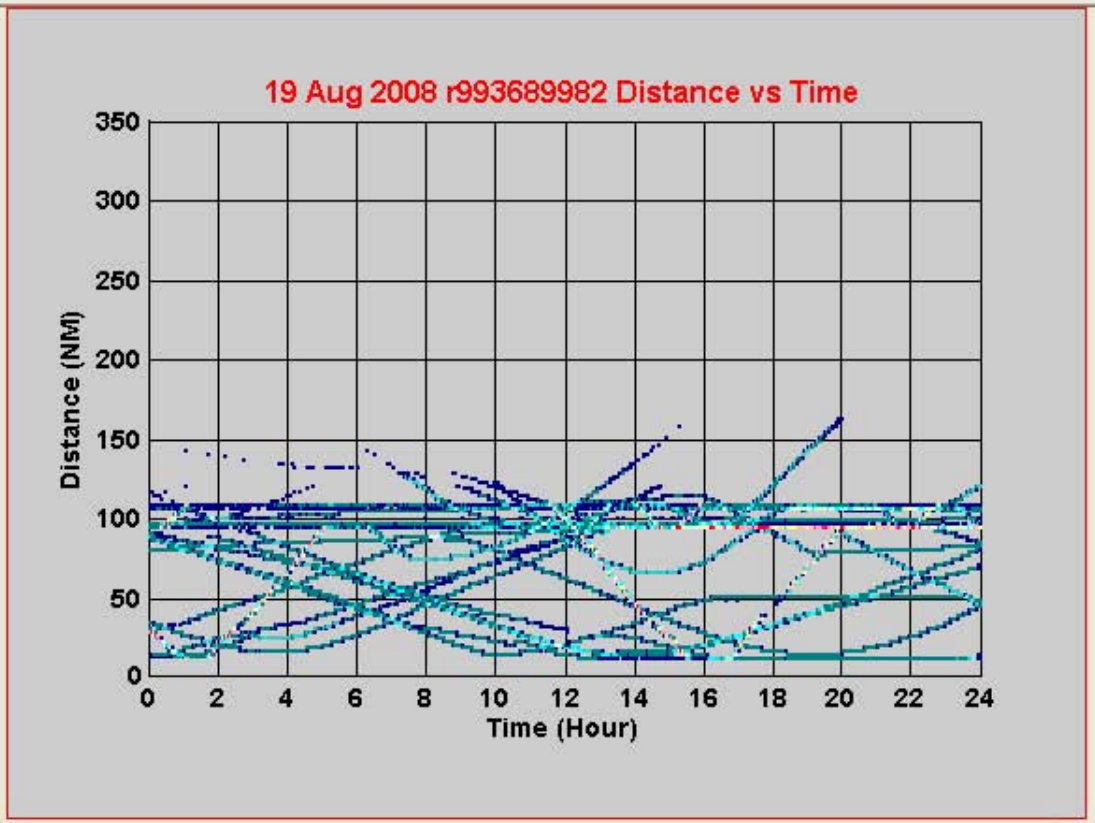
Single Receiver Site Options:
r993689982

Distance vs Time Color Codes

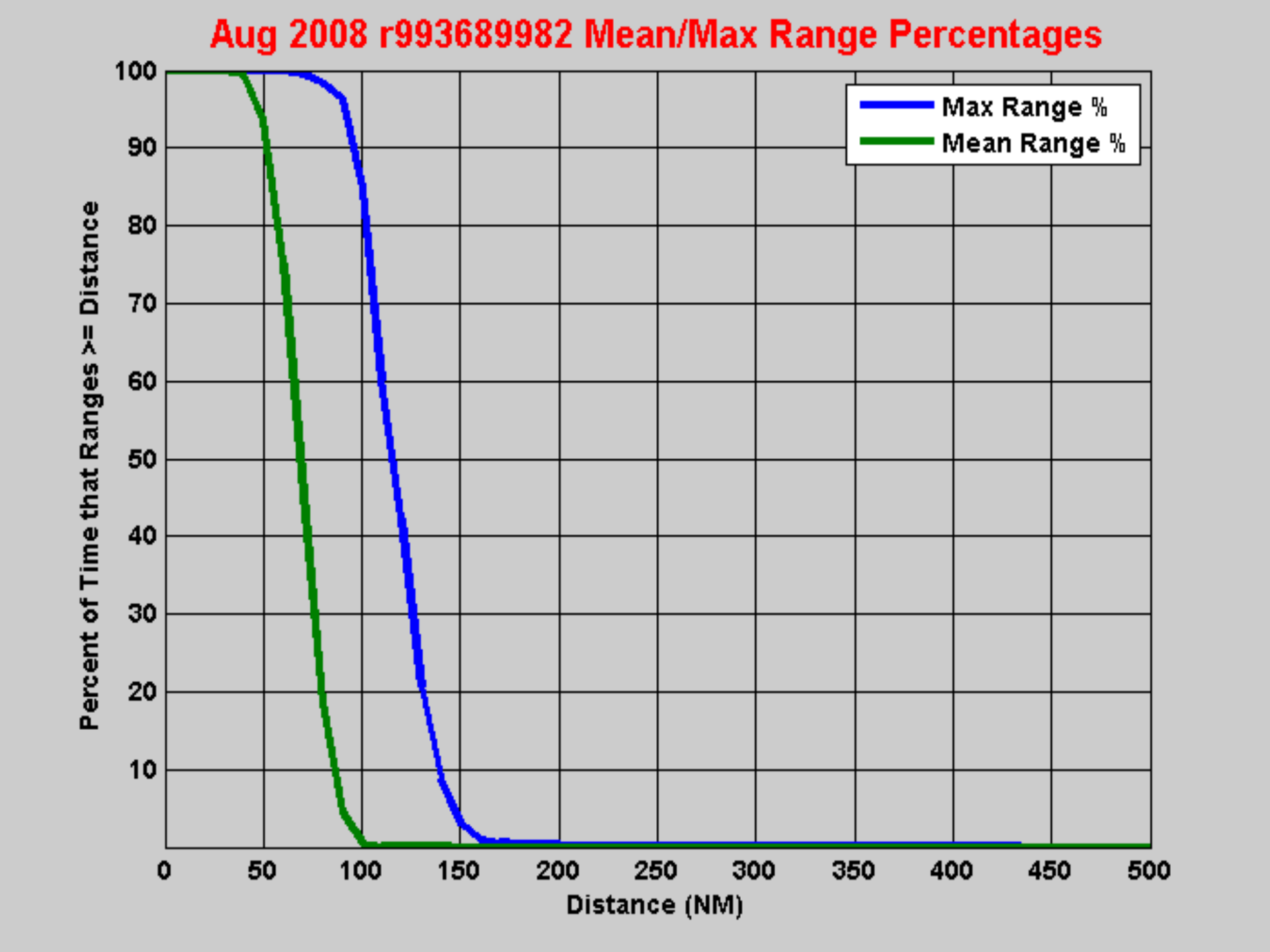
<10
10-20
20-30
30-40
40-50
50-60
60-70
70-80
80-90
90-100
>100

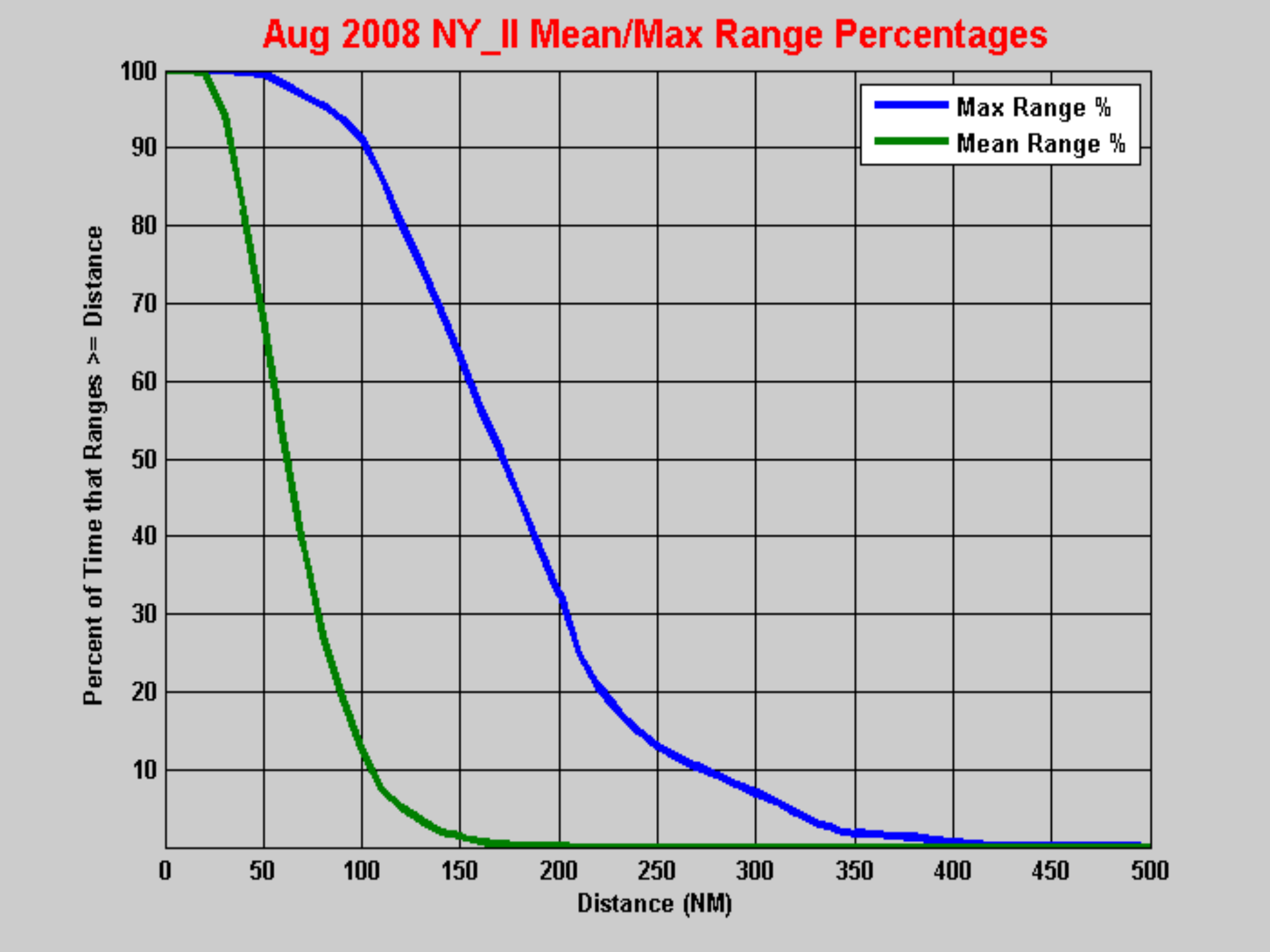
Received reports in 2nmi x 3min "blocks."

Day, or scroll: 27 28 29 30 31



19 Aug 2008 Vessel Count: 46
Mean Distance (nmi): 67.8547
Max Distance (nmi): 163.98
3 Minute Gap Count: N/A Total Time Gaps: 0
Total Cells with Reports: 2052


Aug 2008 r993689982 Mean/Max Range Percentages
Max Range %
Mean Range %
Percent of Time that Ranges >= Distance
Distance (NM)
100
90
80
70
60
50
40
30
20
10
0
50
100
150
200
250
300
350
400
450
500


Aug 2008 NY_II Mean/Max Range Percentages
Max Range %
Mean Range %
Percent of Time that Ranges >= Distance
Distance (NM)
100
90
80
70
60
50
40
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450
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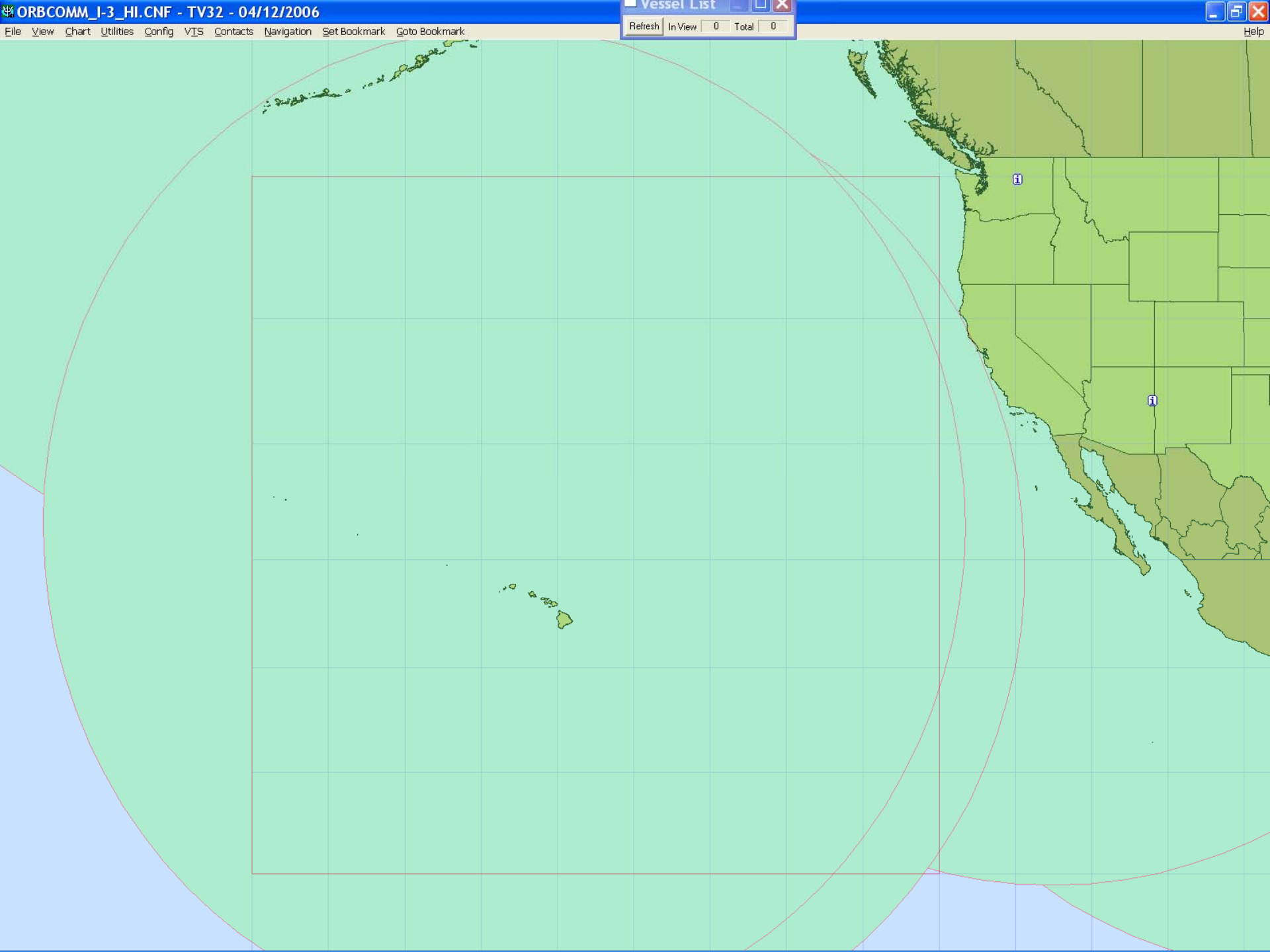
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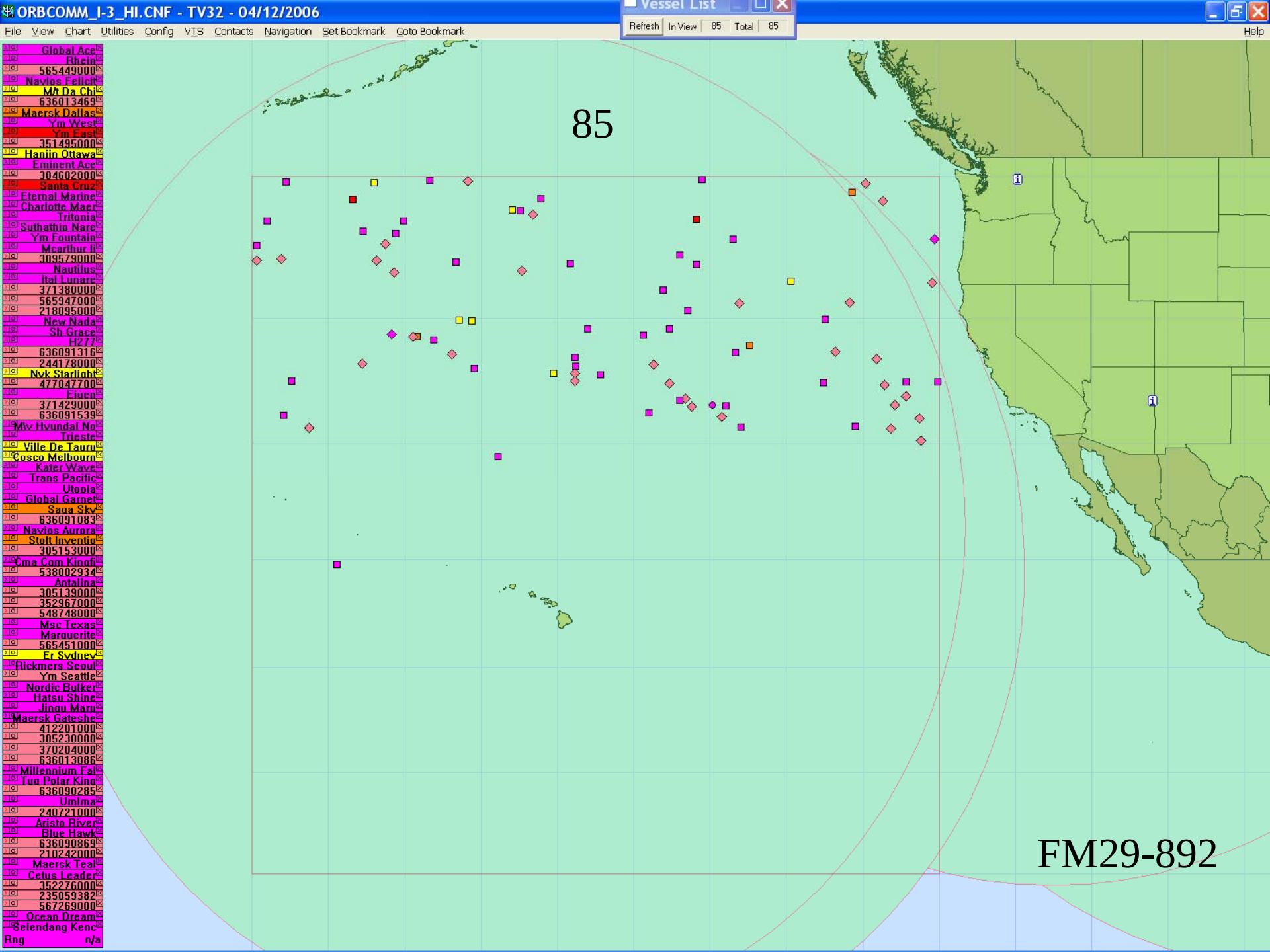
Total 0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Vessel List
Refresh In View 85 Total 85
85
Global Ace
Rhein
565449000
Navios Felicit
Mt Da Ch
636013469
Maersk Dallas
Ym West
Ym East
351495000
Hanjin Ottawa
Eminent Ace
304602000
Santa Cruz
Eternal Marine
Charlotte Maer
Tritonia
Suthathip Nare
Ym Fountain
Mcarthur Ii
309579000
Nautilus
Ital Lunare
371380000
565947000
218095000
New Nada
Sh Grace
H277
636091316
244178000
Nyk Starlight
477047700
Eigen
371429000
636091539
Mv Hyundai No
Trieste
Ville De Tauru
Cosco Melbourn
Kater Wave
Trans Pacific
Utonia
Global Garnet
Saga Sky
636091083
Navios Aurora
Stolt Inventio
305153000
Cma Cgm Kinaf
538002934
Antalina
305139000
352967000
548748000
Msc Texas
Marguerite
565451000
Er Sydney
Rickmers Seoul
Ym Seattle
Nordic Bulker
Hatsu Shine
Jinqu Maru
Maersk Gateshe
412201000
305230000
370204000
636013086
Millennium Fal
Tug Polar King
636090285
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240721000
Aristo River
Blue Hawk
636090869
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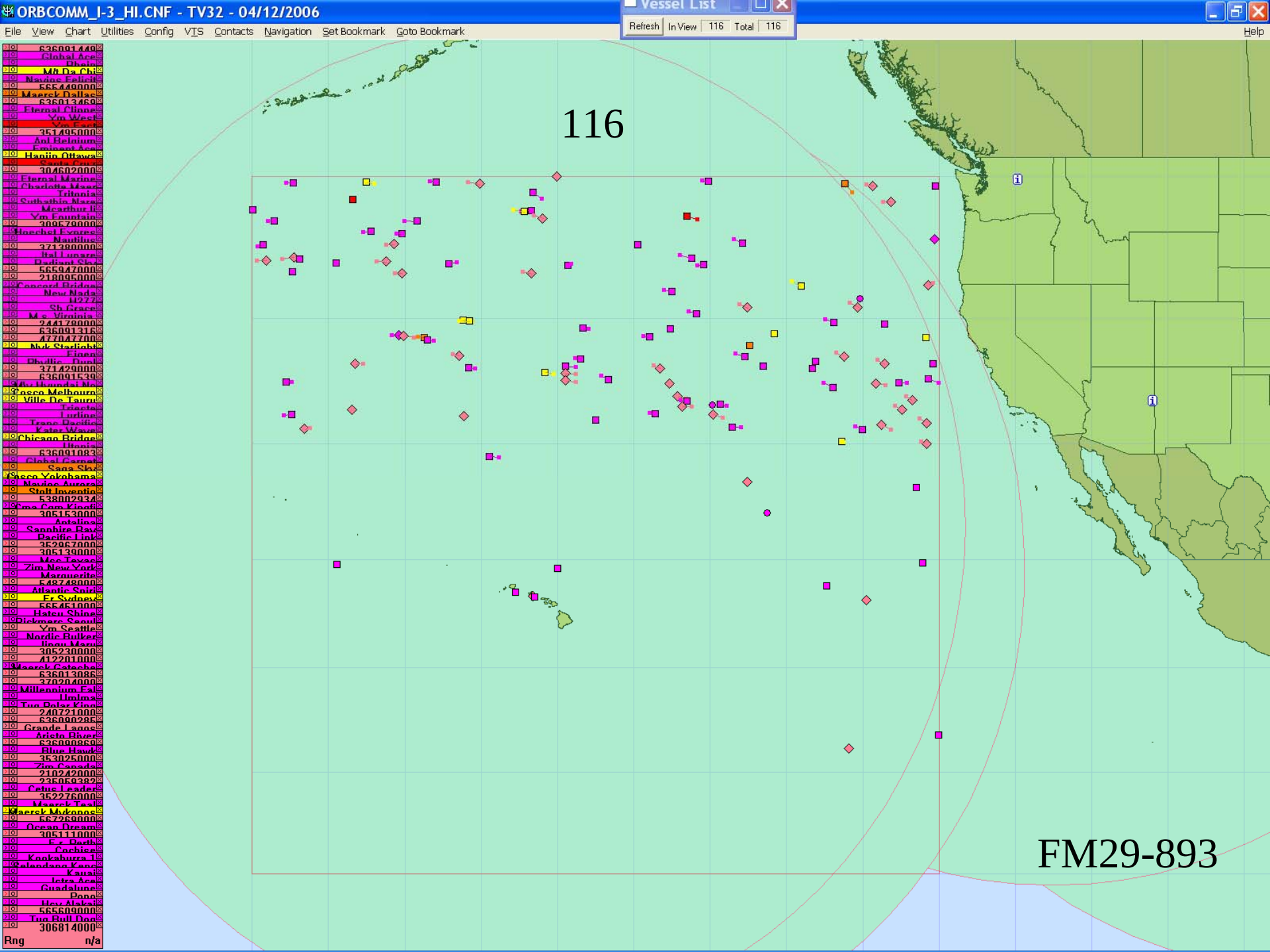
Rng n/a
FM29-892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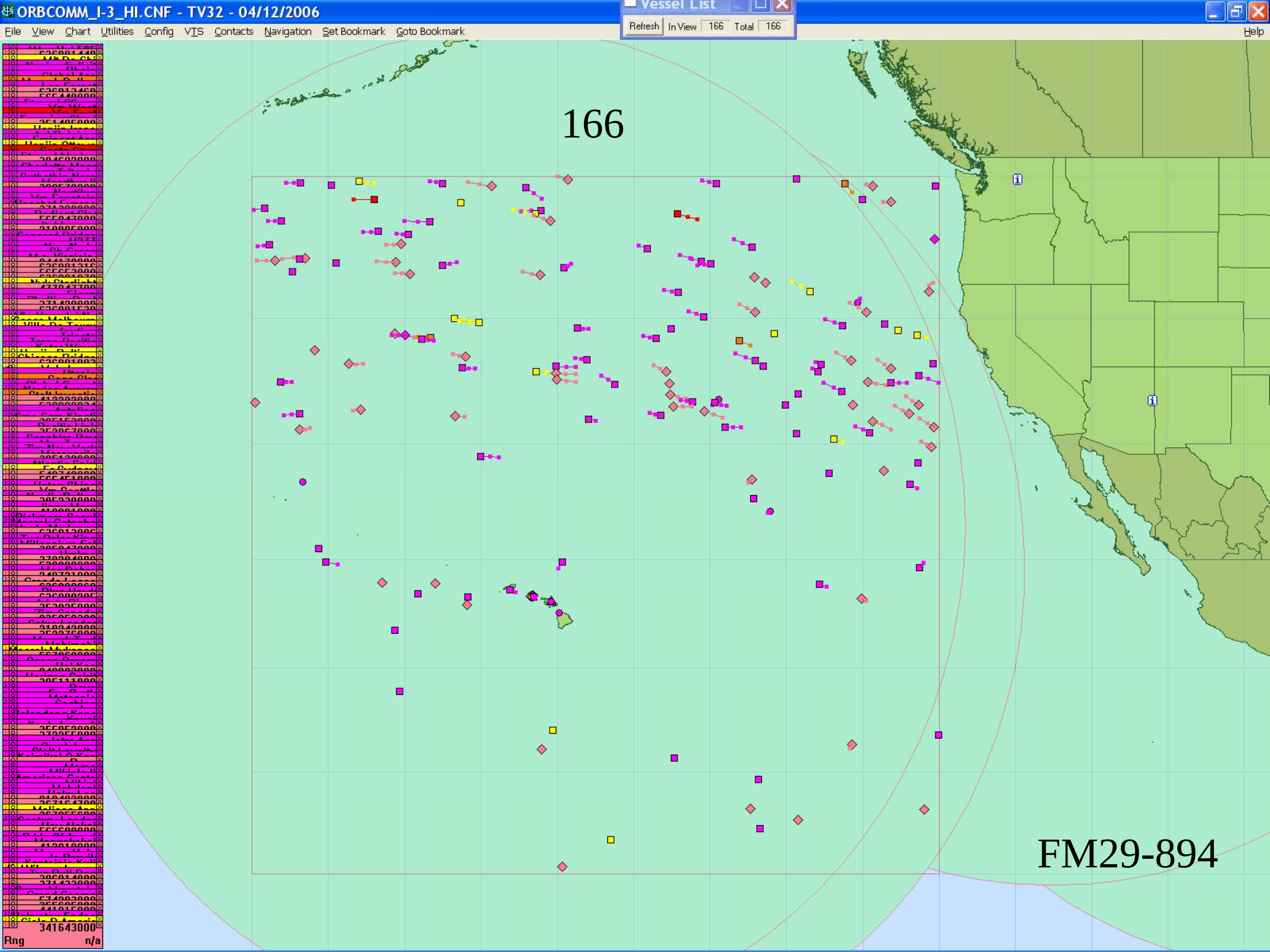
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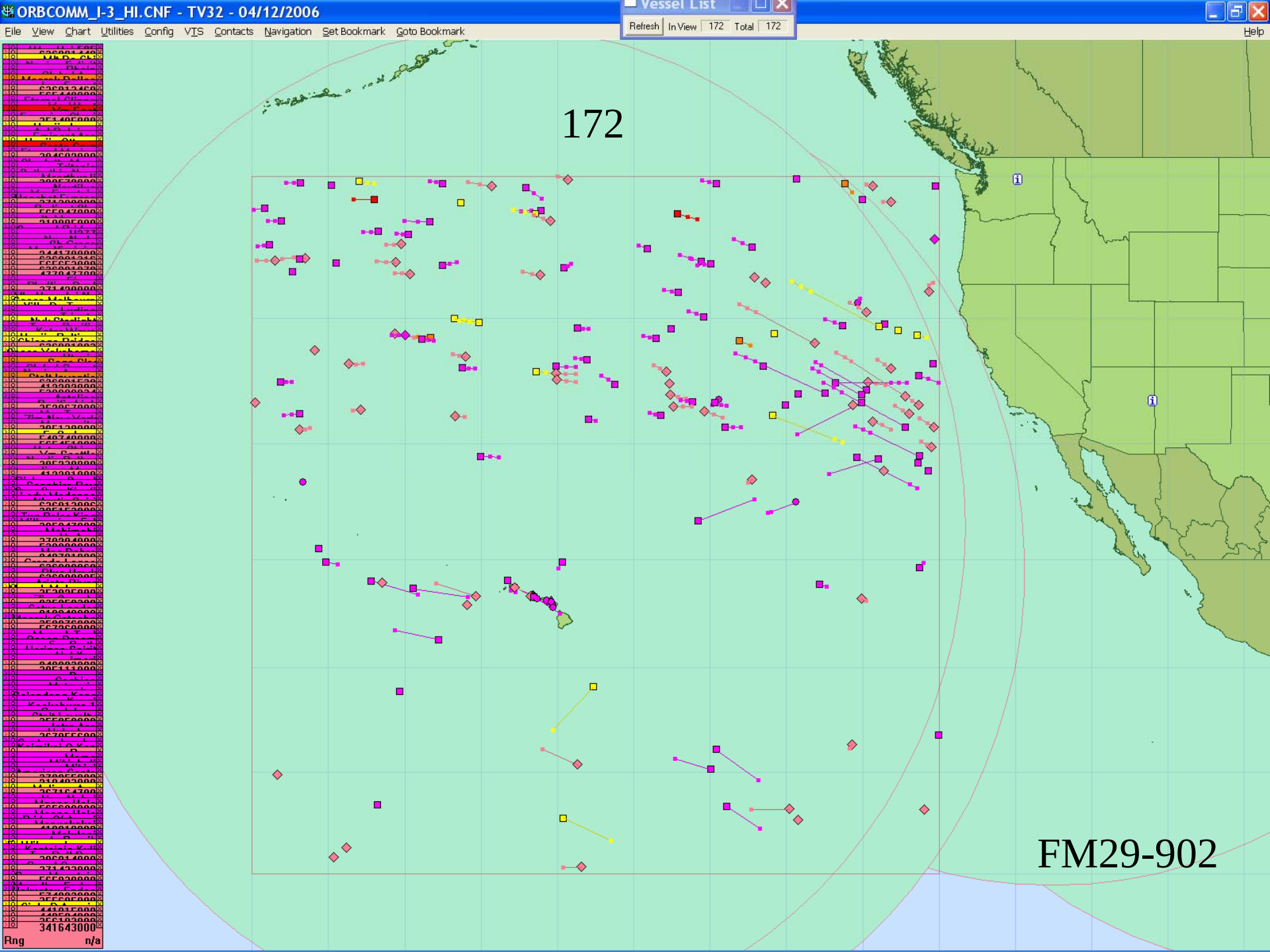
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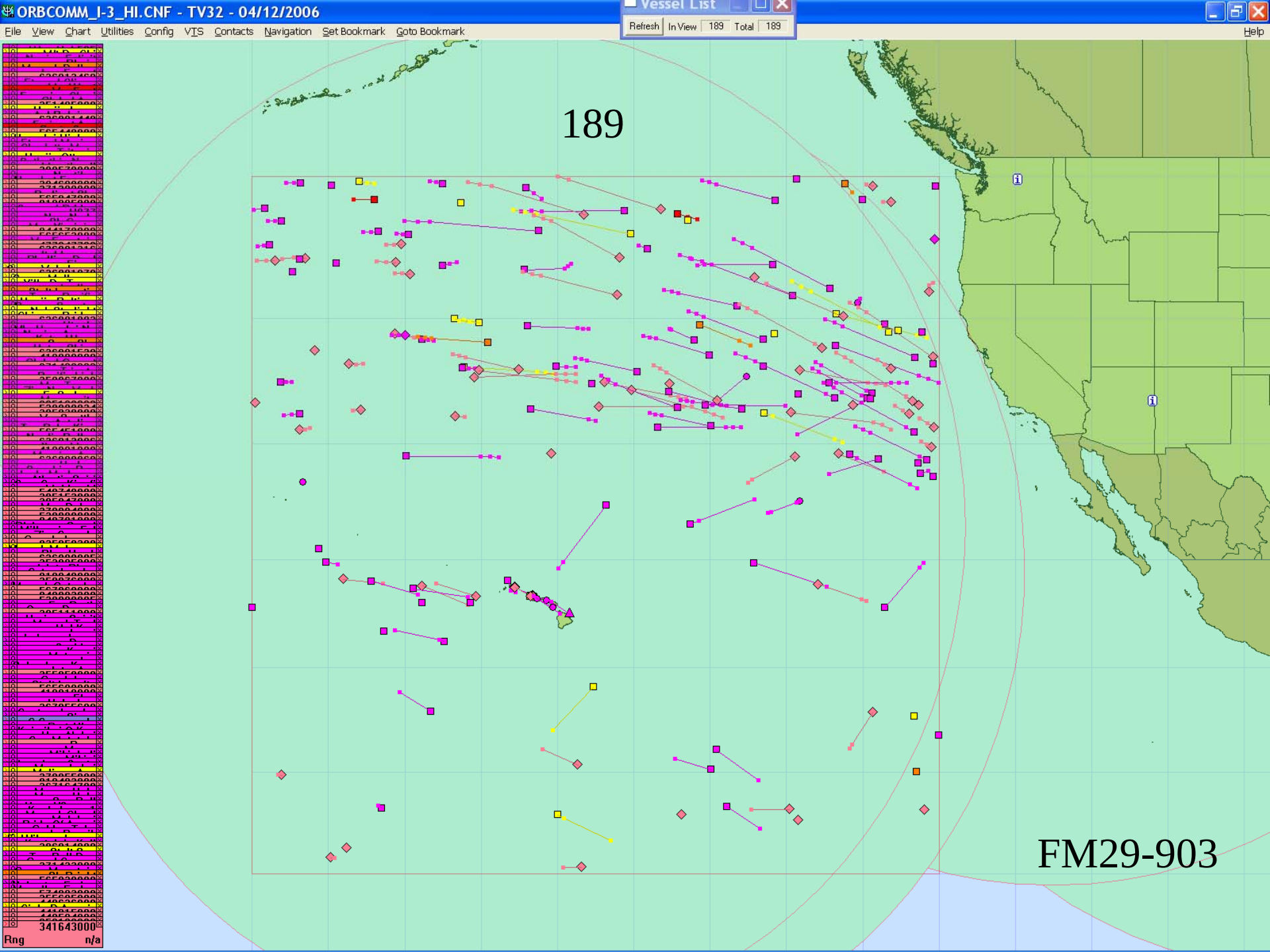
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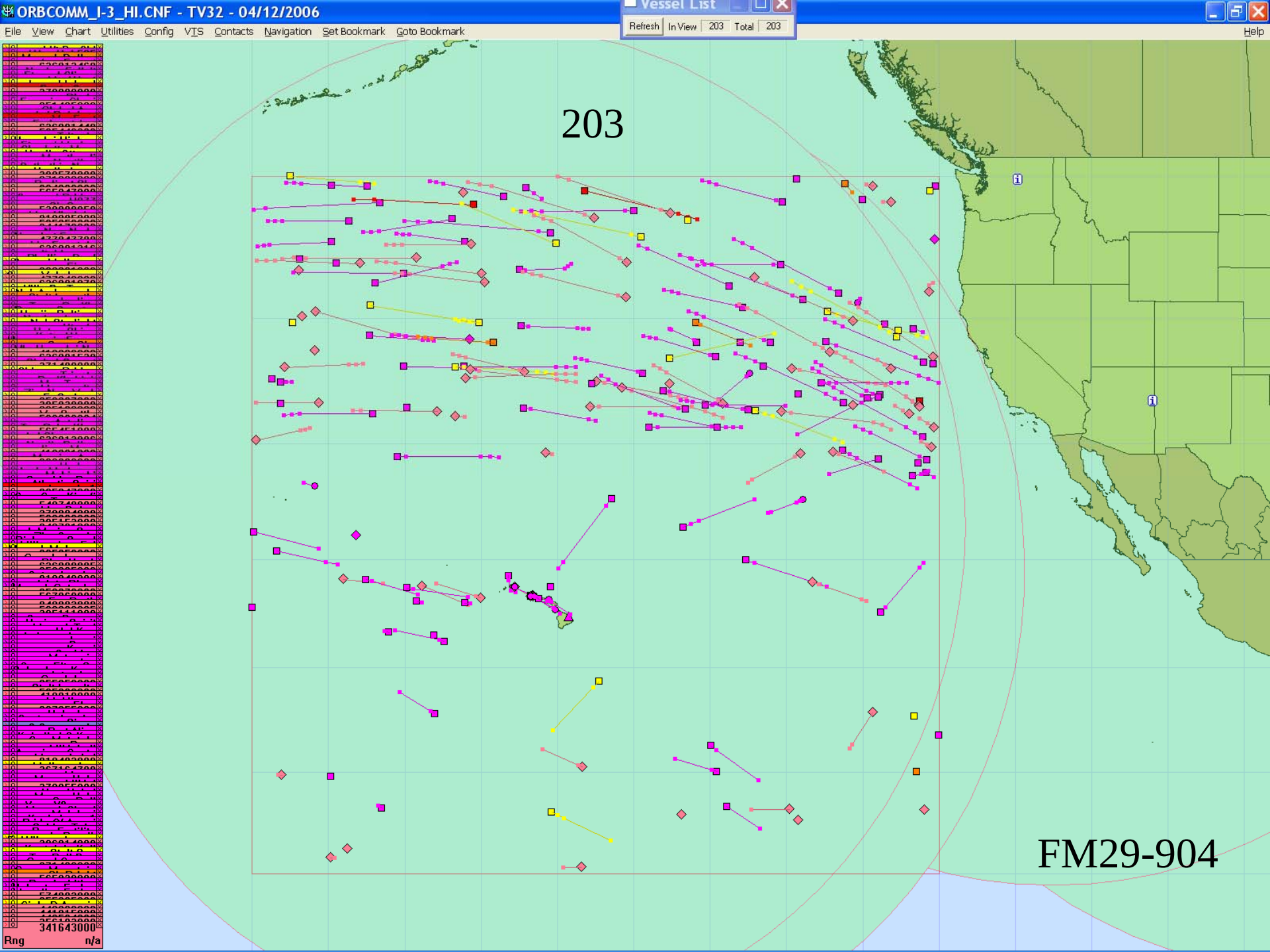
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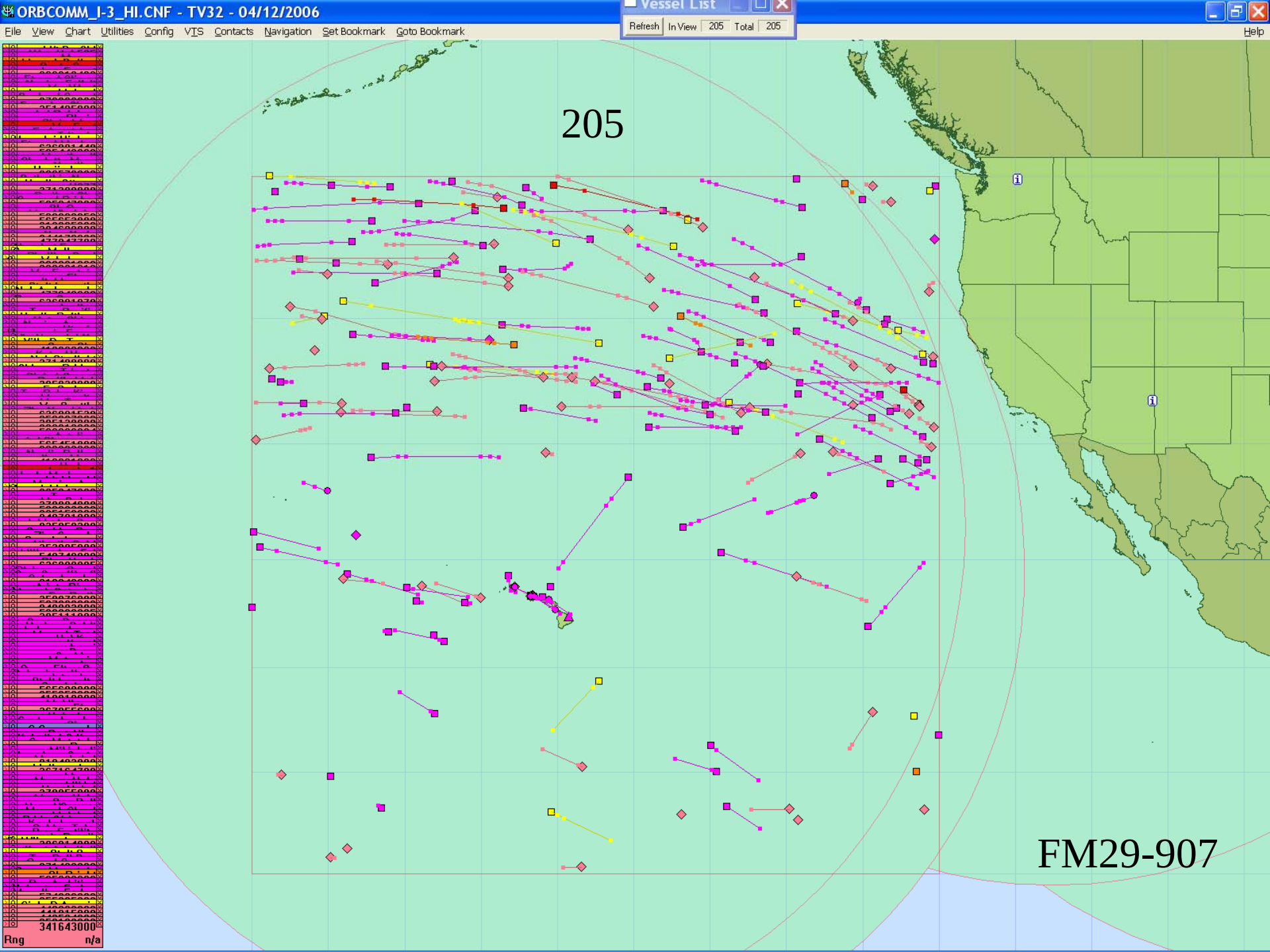
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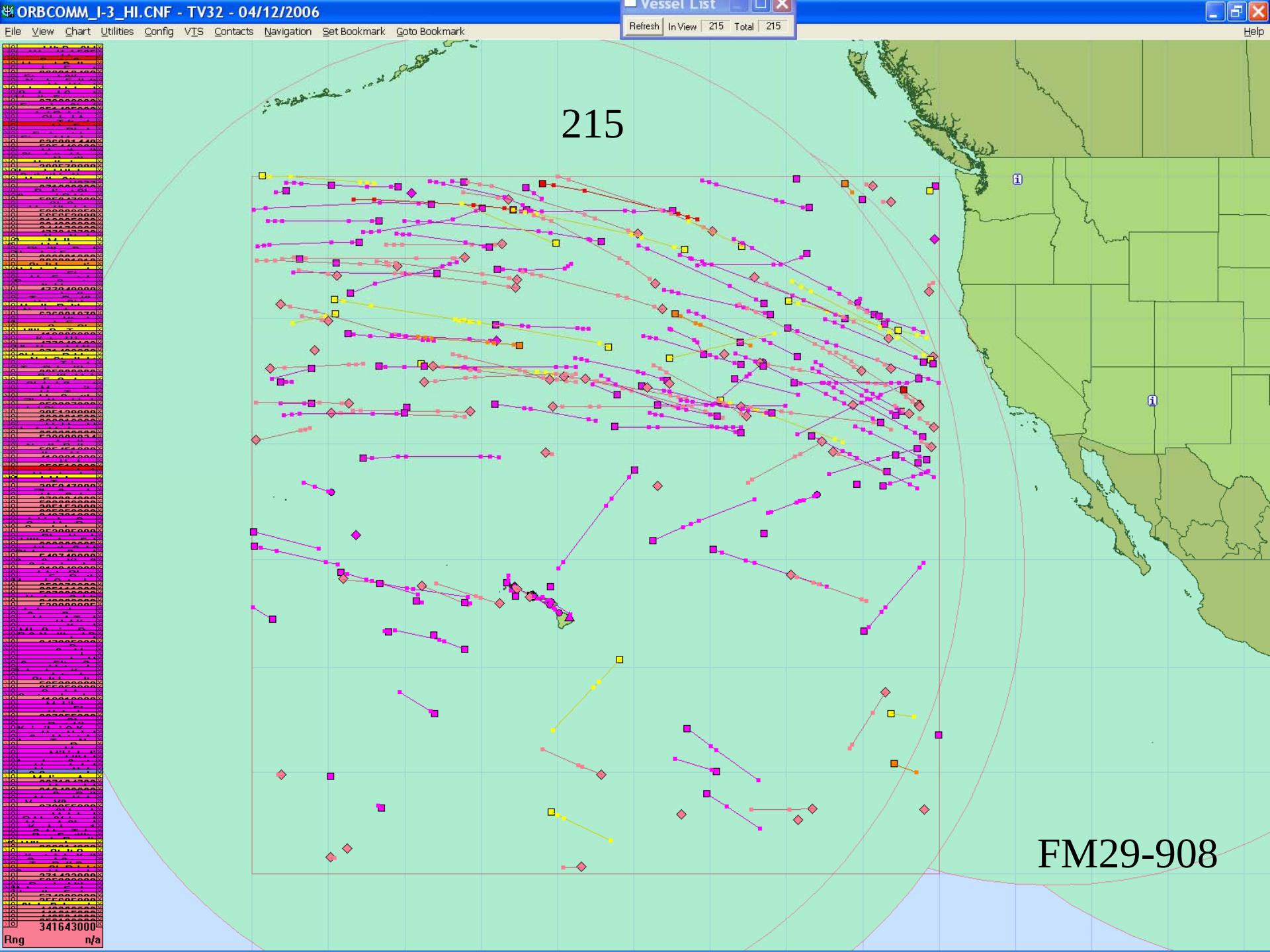
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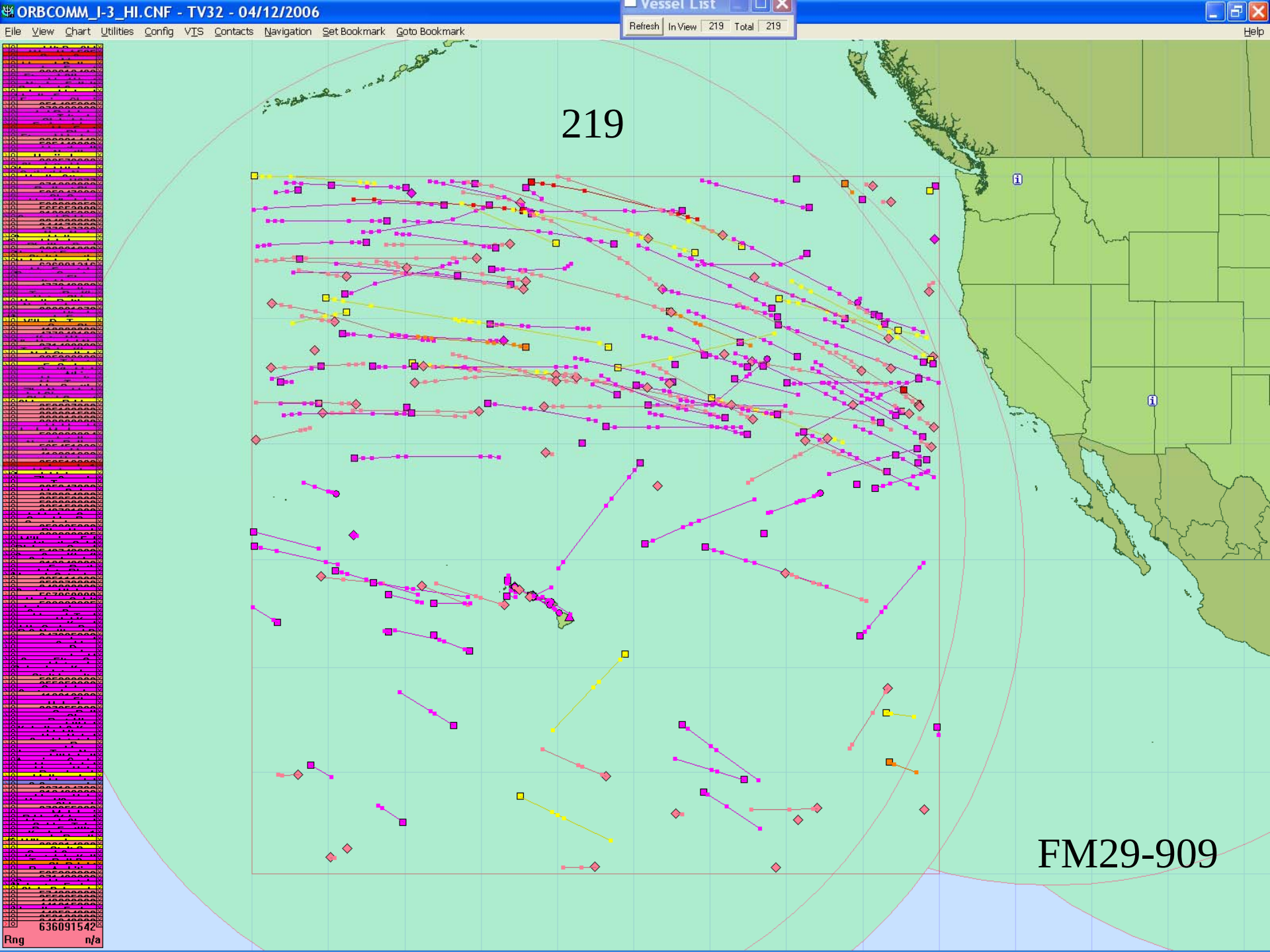
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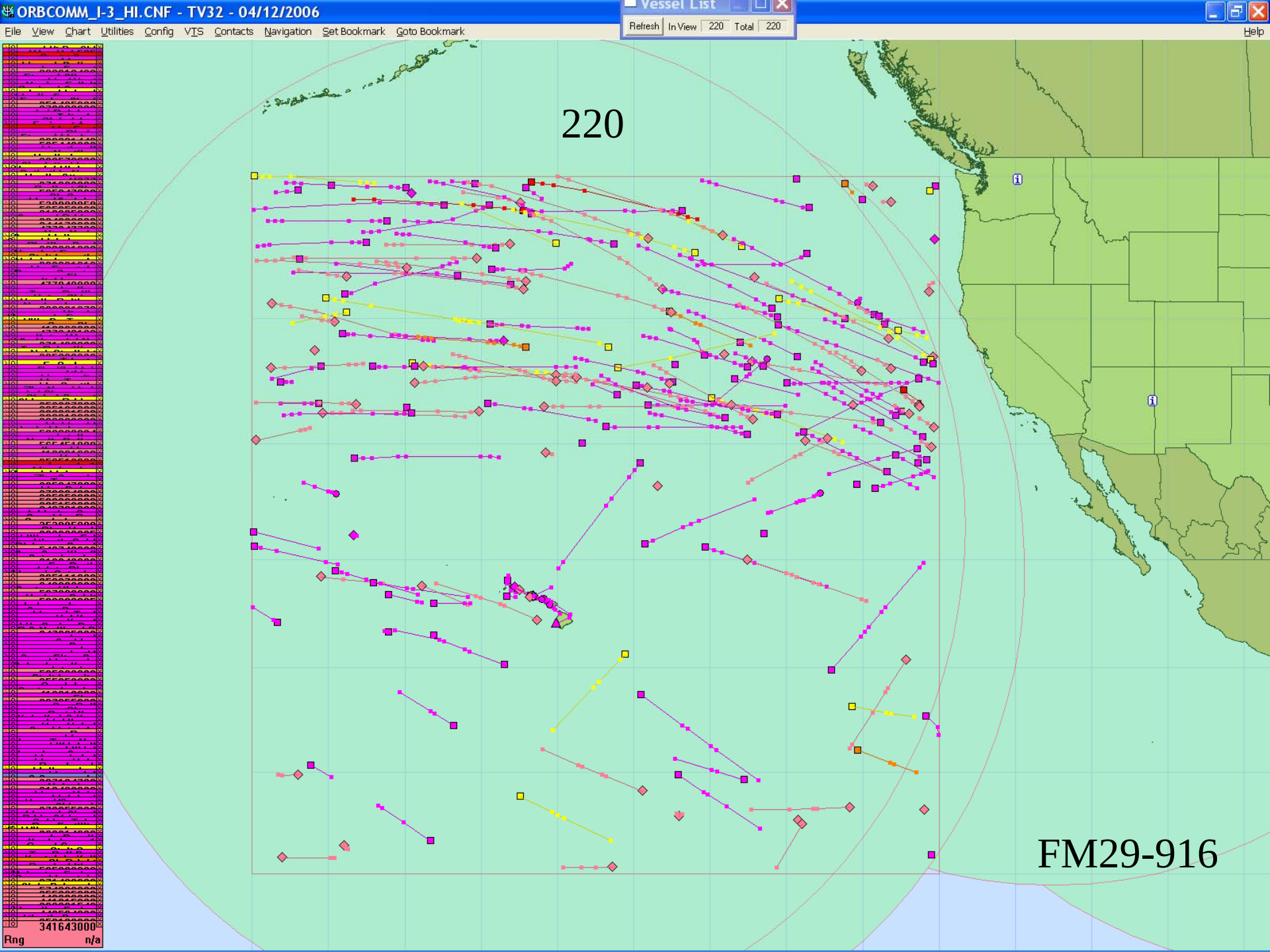
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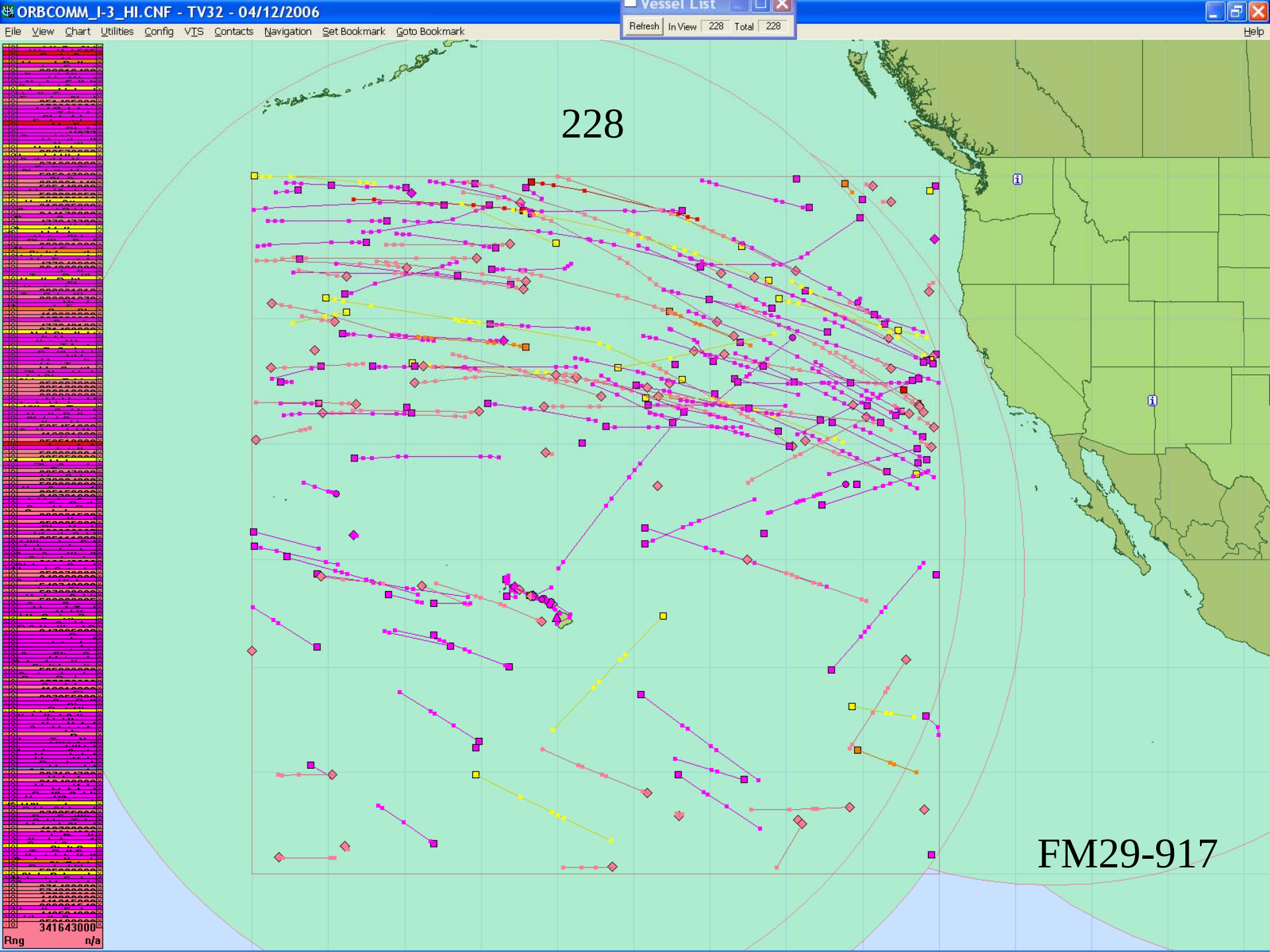
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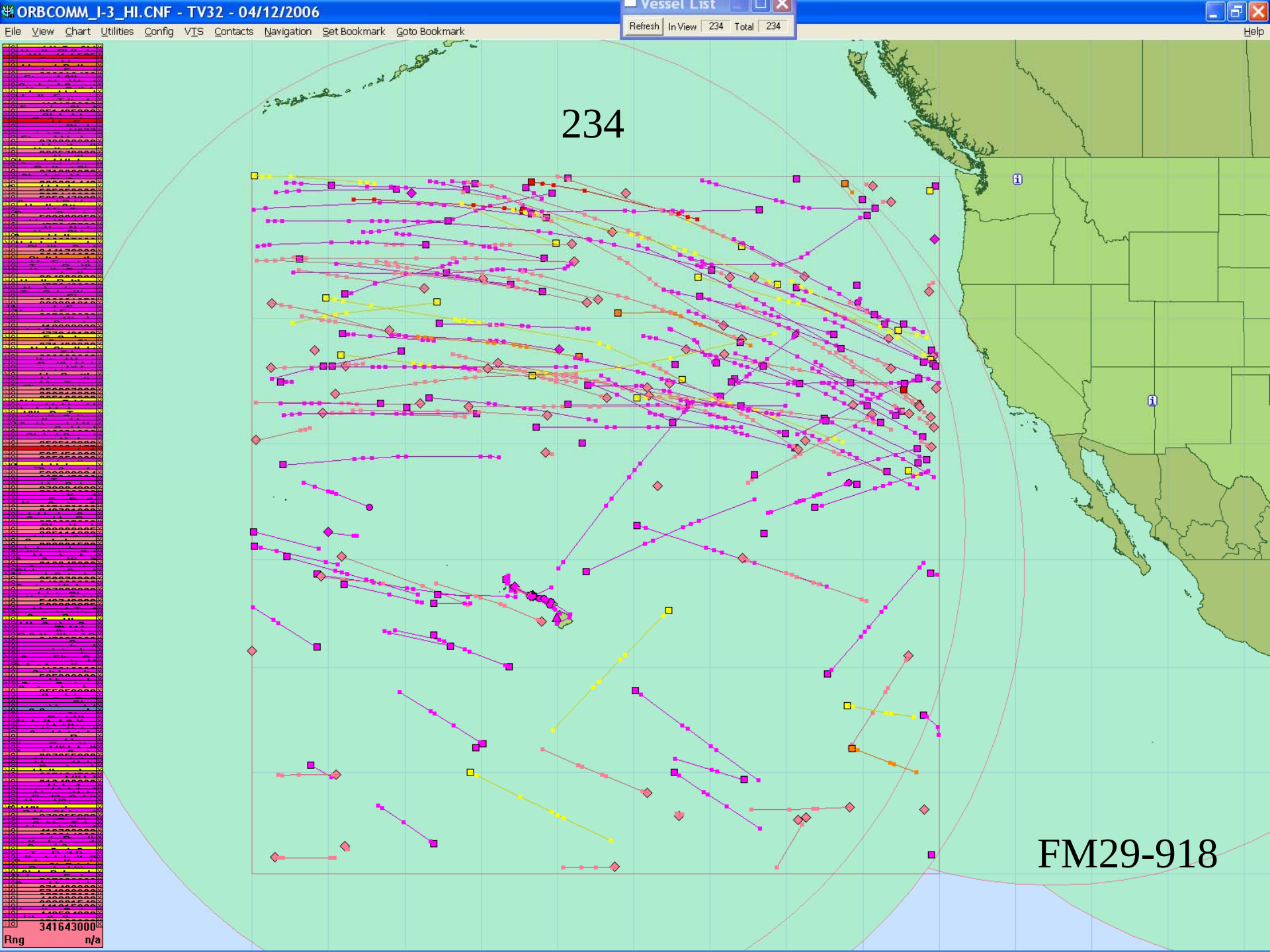
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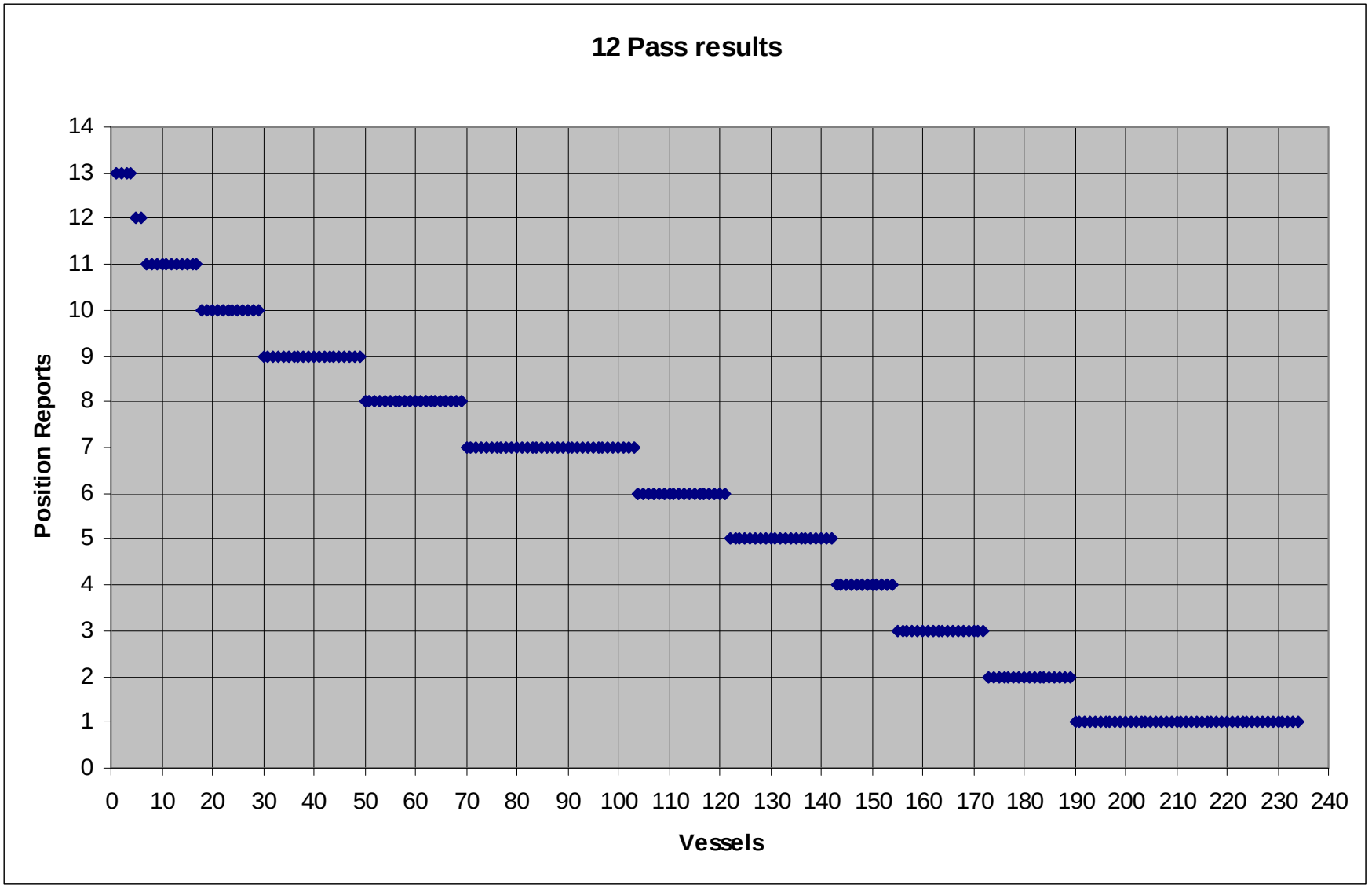
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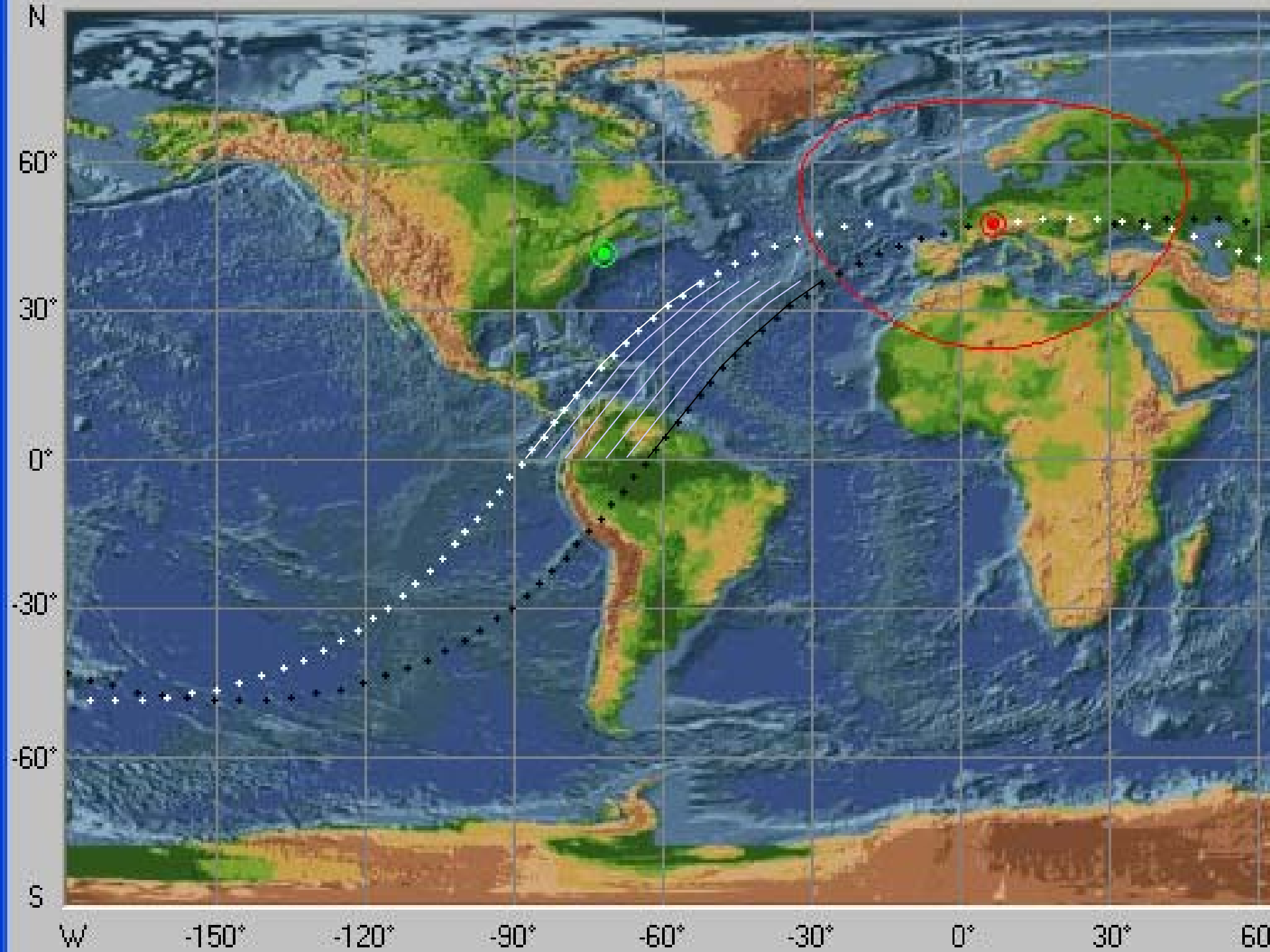
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60

Primary AIS Data Standards

ITU-R M.1371-3

NMEA 0183 [Ver. 4.0]
[IEC 61162-1]

NMEA 2000
IEC 61162-3

Primary AIS Data Standards

ITU-R M.1371-3

AIS VDL message content

NMEA 0183 [Ver. 4.0]

[IEC 61162-1]

Equipment interface/network data transport

Primary AIS Data Standards

ITU-R M.1371-3

Table defined “bits” in “messages”

NMEA 0183 [Ver. 4.0]

[IEC 61162-1]

Defined data fields in “sentences”

What is a “VDM” sentence?

Defined in NMEA 0183 Version 4.0

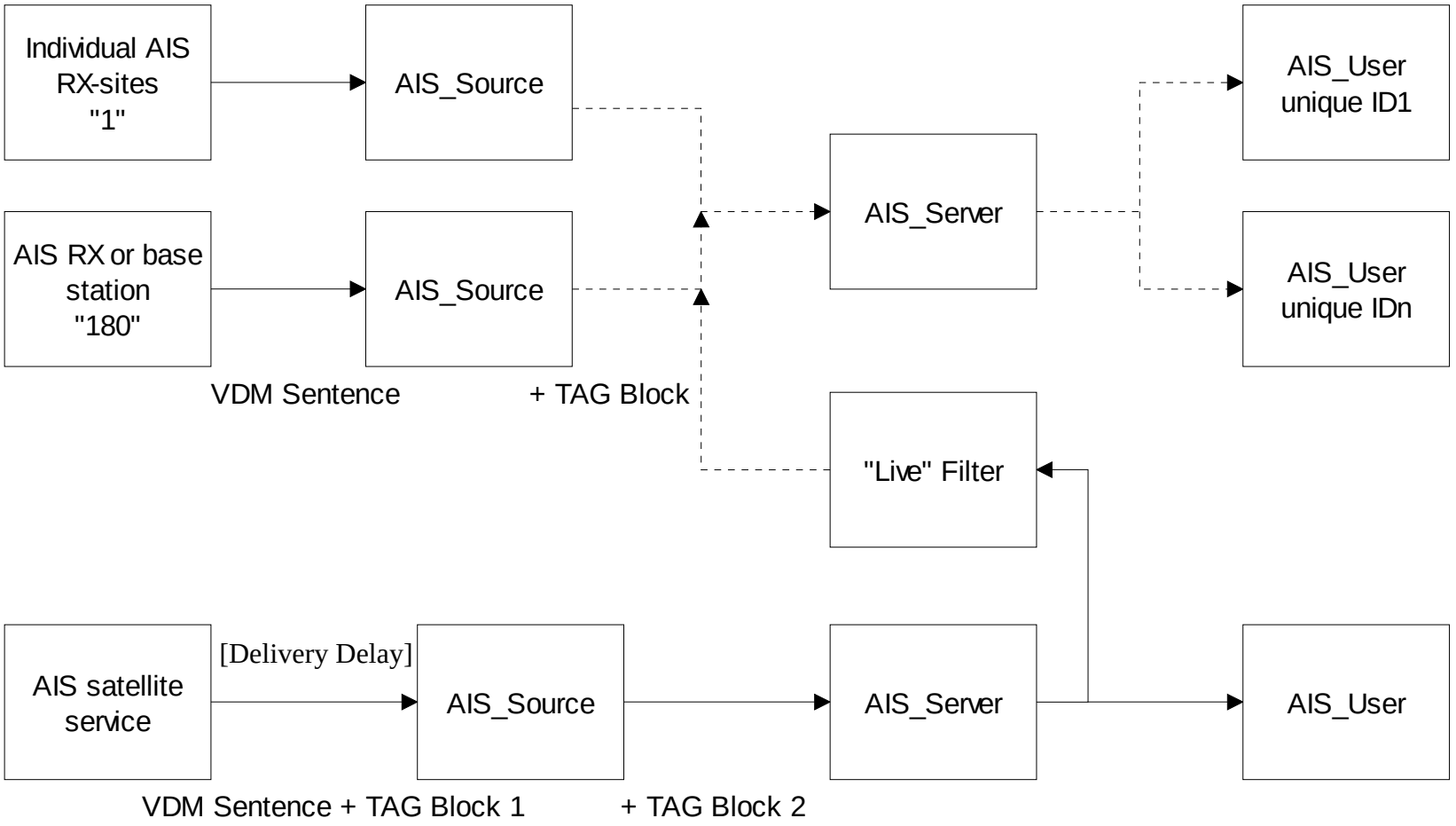
TAG Block 1	TAG Block 2		AIS Message content Defined in ITU-R M.1371

```
\s:rORBCOMM29v,c:1218844182*69\\s:ds6,c:1218844883*1C\!AIVDM,1,1,,,11OGQ00P00G<Es>L=>VMk?vj0000,0*01
\s:rORBCOMM29v,c:1218844186*6D\\s:ds6,c:1218844883*1C\!AIVDM,1,1,,,15MqApPP1=FpPr2M5CCEIOvp0000,0*79
\s:rORBCOMM29v,c:1218844185*6E\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,15N5GjP01;FU0wvOcbQtEIpt0000,0*1E
\s:rORBCOMM29v,c:1218844186*6D\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,181560h02MoSeWpBio@n@E0v0000,0*1C
\s:rORBCOMM29v,c:1218844186*6D\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,14eGEAh001G<jIBL7chWUBPp0000,0*17
\s:rORBCOMM29v,c:1218844190*6A\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,15Mq7@gP00GWf2HBeFc>2Ow40000,0*11
\s:rORBCOMM29v,c:1218844191*6B\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,15NFGrPP1Co>OcRKPSEVIgw60000,0*37
\s:rORBCOMM29v,c:1218844192*68\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,15Mva85P17G?WBLEc<o=kww60000,0*56
\s:rORBCOMM29v,c:1218844196*6C\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,15MA9T0022o9k@HE`V5cLa=<0000,0*3E
\s:rORBCOMM29v,c:1218844198*62\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,11OGQ00Oi@G3vt>JqJhFjEKB0000,0*69
\s:rORBCOMM29v,c:1218844203*63\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,11OGQ00P00G<Es<L=>WehgwH0000,0*52
\s:rORBCOMM29v,c:1218844204*64\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,35DpiL1000oRl3HCCTf6GVkD0000,0*61
\s:rORBCOMM29v,c:1218844204*64\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,14eG;lP001G:DerKv5W7R3GH0000,0*5E
\s:rORBCOMM29v,c:1218844207*67\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,15N11N0P1SFG3FhPoQWnRgwN0000,0*26
\s:rORBCOMM29v,c:1218844204*64\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,15Mwm;PP1BG?jhTEar>TkwwR0000,0*57
\s:rORBCOMM29v,c:1218844212*63\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,34eG?uPOh?Ft5oRLu1H:o8Gh0000,0*78
\s:rORBCOMM29v,c:1218844214*65\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,14QNnh?000G8b;TIQsVTSPgh0000,0*63
\s:rORBCOMM29v,c:1218844220*62\\s:ds6,c:1218844885*1A\!AIVDM,1,1,,,15NE@7PP@pGabCHB25euEJ`60000,0*6C
\s:rORBCOMM29v,c:1218844220*62\\s:ds6,c:1218844885*1A\!AIVDM,1,1,,,15N2rwPP00GRV<8CBrw:POv40000,0*3E
\s:rORBCOMM29v,c:1218844221*63\\s:ds6,c:1218844885*1A\!AIVDM,1,1,,,13UGof001qGJQ9@BKTP5FTF20000,0*45
\s:rORBCOMM29v,c:1218844222*60\\s:ds6,c:1218844885*1A\!AIVDM,1,1,,,15N8BKPP00G99hlJKRtP0?v60000,0*67
\s:rORBCOMM29v,c:1218844223*61\\s:ds6,c:1218844885*1A\!AIVDM,1,1,,,34eGJCh6A<o;nVpL7q4i=Pn60000,0*16
```

TAG (Transport, Annotate, and Group) Block

Its all about the sentences - not the sensor!

Moving the data



TAG Block 1	TAG Block 2		AIS Message content

```
\s:rORBCOMM29v,c:1218844182*69\\s:ds6,c:1218844883*1C\!AIVDM,1,1,,,11OGQ00P00G<Es>L=>VMk?vj0000,0*01
\s:rORBCOMM29v,c:1218844186*6D\\s:ds6,c:1218844883*1C\!AIVDM,1,1,,,15MqApPP1=FpPr2M5CCEIOvp0000,0*79
\s:rORBCOMM29v,c:1218844185*6E\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,15N5GjP01;FU0wvOcbQtEIpt0000,0*1E
\s:rORBCOMM29v,c:1218844186*6D\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,181560h02MoSeWpBio@n@E0v0000,0*1C
\s:rORBCOMM29v,c:1218844186*6D\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,14eGEAh001G<jIBL7chWUBPp0000,0*17
\s:rORBCOMM29v,c:1218844190*6A\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,15Mq7@gP00GWf2HBeFc>2Ow40000,0*11
\s:rORBCOMM29v,c:1218844191*6B\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,15NFGrPP1Co>OcRKPSEVIgw60000,0*37
\s:rORBCOMM29v,c:1218844192*68\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,15Mva85P17G?WBLEc<o=kww60000,0*56
\s:rORBCOMM29v,c:1218844196*6C\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,15MA9T0022o9k@HE`V5cLa=<0000,0*3E
\s:rORBCOMM29v,c:1218844198*62\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,11OGQ00Oi@G3vt>JqJhFjEKB0000,0*69
\s:rORBCOMM29v,c:1218844203*63\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,11OGQ00P00G<Es<L=>WehgwH0000,0*52
\s:rORBCOMM29v,c:1218844204*64\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,35DpiL1000oRl3HCCTf6GVkD0000,0*61
\s:rORBCOMM29v,c:1218844204*64\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,14eG;lP001G:DerKv5W7R3GH0000,0*5E
\s:rORBCOMM29v,c:1218844207*67\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,15N11N0P1SFG3FhPoQWnRgwN0000,0*26
\s:rORBCOMM29v,c:1218844204*64\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,15Mwm;PP1BG?jhTEar>TkwwR0000,0*57
\s:rORBCOMM29v,c:1218844212*63\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,34eG?uPOh?Ft5oRLu1H:o8Gh0000,0*78
\s:rORBCOMM29v,c:1218844214*65\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,,14QNnh?000G8b;TIQsVTSPgh0000,0*63
\s:rORBCOMM29v,c:1218844220*62\\s:ds6,c:1218844885*1A\!AIVDM,1,1,,,15NE@7PP@pGabCHB25euEJ`60000,0*6C
\s:rORBCOMM29v,c:1218844220*62\\s:ds6,c:1218844885*1A\!AIVDM,1,1,,,15N2rwPP00GRV<8CBrw:POv40000,0*3E
\s:rORBCOMM29v,c:1218844221*63\\s:ds6,c:1218844885*1A\!AIVDM,1,1,,,13UGof001qGJQ9@BKTP5FTF20000,0*45
\s:rORBCOMM29v,c:1218844222*60\\s:ds6,c:1218844885*1A\!AIVDM,1,1,,,15N8BKPP00G99hlJKRtP0?v60000,0*67
\s:rORBCOMM29v,c:1218844223*61\\s:ds6,c:1218844885*1A\!AIVDM,1,1,,,34eGJCh6A<o;nVpL7q4i=Pn60000,0*16
```

AIS Valid Position Reports are 18 bytes when transmitted from the ORBCOMM satellites to the ground infrastructure. They contain the information as noted in the ITU-R M.1371 documentation as follows:

- Message ID
- Repeat Indicator
- User ID (MMSI)
- Navigational Status
- Rate of Turn
- Speed Over Ground
- Position Accuracy
- Longitude
- Latitude
- Course Over Ground
- True Heading
- Time Stamp

The final four fields as noted in the ITU-R M.1371 documentation are not used; they are:

- Special maneuver indicator (2 bits)
- Spare (3 bits)
- RAIM Flag (1 bit)
- Communication State (19 bits)

So, where do we go from here?